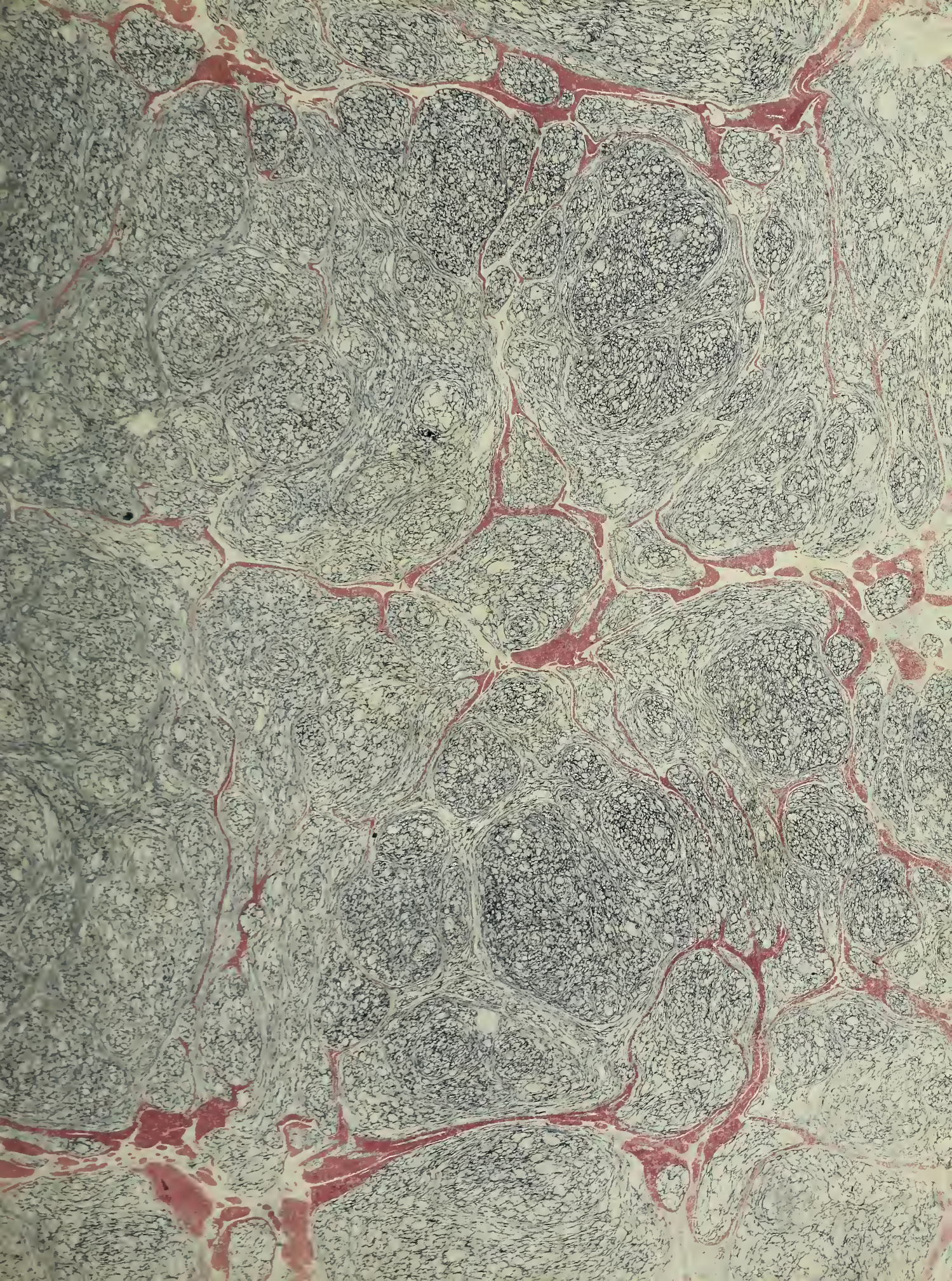




WARLAND CASTLE.



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Donovan (E) *Illustrations of the Natural History*  
*of the Insects of China*, original edition,  
4to, 50 beautifully coloured plates, 1798.

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AN  
E P I T O M E  
OF THE  
N A T U R A L   H I S T O R Y  
OF THE  
I N S E C T S   O F   C H I N A :  
COMPRISING  
*FIGURES AND DESCRIPTIONS*  
OF  
UPWARDS OF ONE HUNDRED NEW, SINGULAR, AND BEAUTIFUL SPECIES; TOGETHER WITH  
SOME THAT ARE OF IMPORTANCE IN MEDICINE, DOMESTIC ECONOMY, &c.

THE FIGURES  
ARE ACCURATELY DRAWN, ENGRAVED, AND COLOURED, FROM SPECIMENS OF THE INSECTS;

THE DESCRIPTIONS  
ARE ARRANGED ACCORDING TO THE SYSTEM OF LINNÆUS; WITH REFERENCES TO THE  
WRITINGS OF FABRICIUS, AND OTHER SYSTEMATIC AUTHORS.

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*By E. DONOVAN,*

AUTHOR OF THE NATURAL HISTORY OF BRITISH INSECTS, &c.

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L O N D O N :  
*PRINTED FOR THE AUTHOR, BY T. BENSLEY;*  
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1798.



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## ADVERTISEMENT.

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THE History, and Present State of China, as far as relates to its government, its sciences, and its arts, has long been considered worthy of the deepest research; and much information has been collected on these subjects, with considerable labour and expence, under the auspices of several of the most powerful courts in Europe. If the natural productions of that country have attracted less attention, it is only because their value and importance are less generally known; upon better acquaintance they would at once excite our astonishment, and convince us of their utility.

General readers are sometimes disposed to consider the Insect World as too minute and frivolous to deserve investigation. Let them remember, however, that to a foreign Insect the staple commodity of this kingdom is indebted for its richest dye; that from another we derive the most costly articles of dress, and splendid ornaments of luxury; and the utility of many others is apparent in various branches of medicine, the arts, and domestic economy.

Prompted by these reflections, the Author determined to submit to the Public a Series of Engravings illustrative of the Entomology of China.—But flattering as the prospect of encouragement to his project appeared, he would not presume to publish his Work till the result of the late Embassy of Earl Macartney to that country was fully known: of that the public are now in possession; and, though, in common with every friend to the ~~com~~mercial advantages and scientific inquiries of this country, the Author must regret its issue, it is perhaps, on the whole, more favourable to the present Publication than if the event had been different. If indeed a more general intercourse had been established between the two nations, and the language of China had been better understood, it is impossible to calculate the advantages which Entomology, amongst other sciences, might have derived; for the Chinese, like their neighbours the Japanese, are well acquainted with the natural productions of their empire, and Zoology and Botany, in particular, are favourite studies amongst them. To what degree of excellence they have arrived in their scientific researches we are not informed, but we must not affect to despise the instruction of a people amongst whom the most useful arts, and sciences, first dawned and acquired a high degree of perfection, when “Europe had scarcely a few savages scattered over her forests.”

The few, but interesting hints, which Sir George Staunton has given on the practical Entomology of China, induces us to look forward to a period when some of the Insects, as well as Plants, of that vast empire may be no less objects of curiosity, than of national utility and importance; the Chinese Cochineal Insect<sup>a</sup>, and that from which the wax of the east is procured,

<sup>a</sup> Dr. Anderson has found eight species of Cocci at Madras. One of these, he says, was found on a young citron-tree, *Citrus Sinensis*, just landed from China; it was more deeply intersected between the abdominal rings than any of those of the coast, and he names it therefore *C. Diacopeis*.—*Collection of Letters from Madras*, Jan. 28, 1788.—The Cactus Cochinilifer has lately been found by Mr. Kincaid, at Canton; its Chinese name is *Pau wang*.—This has been transmitted to the *Nepalry* of the Hon.

are two species that deserve particular attention. The medical precepts of the Chinese will certainly find few votaries in Europe, but as articles of medicine, amongst others, the *Meloe Cichorei*, which were the cantharides of the ancients, and are now used by the Chinese, may be of importance, as it possesses more virtues than the *Meloe Vesicatorius* used in our pharmacy: the *Curculio regalis*, *Buprestis vittata*, and many others, are also employed in articles of jewellery in the eastern parts of the world, and may vie with the richest gems in beauty and splendour.

These observations we presumed to offer on the Entomology of China, in submitting the Design of this undertaking to the public. We have solicitously endeavoured to gratify the curiosity and expectation such observations were calculated to excite, and trust not altogether unsuccessfully. On the economical purposes of the Chinese Insects we can offer little except conjectures; those may, however, assist the inquiries of future observers; and the general reader will not be disposed to regard it with less favour, if novelty and beauty supply the deficiency of useful information. It embraces, in one view, a variety of the most uncommon and brilliant species of that fertile region, portrayed in an elegant and faithful manner; and classically arranged according to the favourite system of *Linnaeus*. Thus, whilst our *Epitome of the Chinese Insects* exhibits a splendid display of this beauteous race, it may insensibly lead to a comprehensive survey of the system itself; and, by conveying instruction in its most pleasing form, facilitate the study of this charming, but much neglected science.

From its commencement, the Author has been encouraged by the liberal attention of several persons, whose names would reflect honour on this undertaking, were he at liberty to mention them. He has already observed that his own collection includes several thousand specimens, collected by amateurs of the first celebrity<sup>b</sup>. To this he may add, that every other collection he was desirous of consulting, has been kindly open to his inspection; and every information communicated with a readiness that merits his warmest thanks. Amongst these, he cannot refrain noticing the valuable collection of Drawings and MSS before alluded to; the specimens of Insects collected in the journey of his Excellency Earl MACARTNEY, in the late embassy to China; and the very magnificent collections of Mr. FRANCILLON and Mr. DRURY, from both of whom he had unreserved permission to figure and describe whatever his own cabinet could not furnish. And, finally, he must own himself particularly indebted to the favours of the Right Hon. Sir J. BANKS, Bart. K. B. whose invaluable cabinet and library have afforded him every assistance in completing his design, and for which he begs leave to testify his most grateful acknowledgments.

East India Company, at Madras, and promises to be of future advantage to the commercial concerns of Great Britain. We have been unable to procure any of the Chinese Cochineal insects, and purposely omit that species which Sir G. Staunton has noticed, because it has no relation to the productions of China.

<sup>b</sup> *The late Duchess Dowager of Portland, — Tunstall, Esq. Governor Holford, Smeethman, Ellis, Keate, Yeats, Forster, Bailly, &c. &c.*



COLEOPTERA.



\* *Scarabæus* *Midas*.

\* *Scarabæus* *nasicornis*.

\* *cinctus*.

\* *saxæ*.

\* *Leei*.



COLEOPTERA.



\* *Scarabaeus Moleossus.*

\* *Scarabaeus Seniculus.*

++ *Scarabaeus Bucephalus.*

*London Published as the Art directs by E. Donovan May. 1798.*

## COLEOPTERA.

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### SCARABÆUS NASICORNIS.

#### GENERIC CHARACTER.

Antennæ terminate in a kind of club, divided longitudinally into laminæ. Second joint of the foremost pair of legs furnished with spines or teeth.

#### SPECIFIC CHARACTER.

A scutellum. Thorax armed with three prominences. Horn on the head recurved. Wing-cases smooth.

SCARABÆUS NASICORNIS: scutellatus thorace prominentia triplici, capitis cornu recurvo, elytris lævibus.

*Linn. Syst. Nat.*

*Fab. Ent. Syst.* 1. p. 14. 38.

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The male of this species is furnished with a long recurved horn on the head; the female has only a small rising on that part. It is found in Europe as well as China.

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### SCARABÆUS SENICULUS.

#### SPECIFIC CHARACTER.

Without scutellum. The anterior part of the thorax furnished with two horns, posterior of the head bidentated.

SCARABÆUS SENICULUS: exscutellatus thorace antice clypeo postice bicorni. *Fab. Ent. Syst.* 1. p. 43. 142.

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The annexed figures exhibit the two sexes of Scarabæus Seniculus. In some specimens the spots are very indistinct and reddish, in others the wing-cases have faint red striæ. The female has the rudiments of horns on the thorax.

## COLEOPTERA.

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### SCARABÆUS MIDAS.

#### SPECIFIC CHARACTER.

Without scutellum. Thorax armed with three horns: a horn on each side of the head.

SCARABÆUS MIDAS: exscutellatus thorace tricorni, capitis, clypeo sinuato bicorni.

*Fab. Ent. Syst. T. 1. p. 45. 148.*

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The figure of this rare species is taken from a specimen in the collection of Mr. Drury, of London, on assurance that it was received from China. Another, in the cabinet of Sir J. Banks, Bart. described by Fabricius, is noted from America.

The horns on the head of this insect have a very uncommon appearance, and which authors have compared to a pair of ears. The specific name Midas has been aptly given from this circumstance.

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### SCARABÆUS BUCEPHALUS.

#### SPECIFIC CHARACTER.

Without scutellum. Thorax blunted in front, armed with four teeth or horns. Shield of the head angulated, furnished with a horn.

SCARABÆUS BUCEPHALUS: exscutellatus thorace retuso quadridentato, capitis clypeo angulato: cornu emarginato. *Fab. Ent. Syst. T. 1. p. 51. 166.*

---

This species has been confounded with *S. Molossus*. Both insects are given on the same plate, that the difference may be precisely observed.

## COLEOPTERA.

### SCARABÆUS MOLOSSUS.

#### SPECIFIC CHARACTER.

Without scutellum. Thorax blunted, armed with two teeth, or horns: impressed on each side. Front of the head lunated; with a horn. Wing-cases smooth.

SCARABÆUS MOLOSSUS: exscutellatus thorace retuso bidentato utrinque impresso, clypeo lunato unicorni integro, elytris lævibus. *Linn. Syst. Nat.* 2. 543. 3.  
*Fab. Ent. Syst.* 1. p. 51. 167.

S. Molossus and S. Bucephalus are very common in China. The first seems a local species, the latter is said to be found in other parts of the East Indies. *Olivier* has given three varieties of *Scarabæus Molossus*. The specimen figured in the annexed plate is the *var. c.* of that author.

The larvæ of the larger kinds of coleopterous insects, abounding in unctuous moisture, are not less esteemed as food among some modern nations, than they were by the epicures of antiquity. In Jamaica, and other islands in the West Indies, the Macokko<sup>a</sup> larva is an article of luxurious food; and in China most insects in that state are appropriated to the same purpose. Thus also the Romans introduced the larvæ of the Lucani<sup>b</sup> and Cerambyes<sup>c</sup> in their voluptuous repasts; previously feeding them on farinaceous substances to give confidence to the animal juices.

The learned author of the last account we have of China, says, "Under the roots of the canes is found a large white grub, which being fried in oil is eaten as a dainty by the Chinese." Perhaps this is the larva of *Scarabæus Molossus*, which, like many other of the *Scarabæi*,<sup>d</sup> may live sedentary in the ground, and subsist on the roots of plants: the general description and abundance of this insect in China favours such opinion. The same author observes, in another part of his work, that "the aurelias of the silk worm which is cultivated in China, after the silk is wound off, furnish an article for the table." This also is a very ancient custom among the Asiatics, and even Europeans, before the sixteenth century, if we may credit *Aldrovandus*:<sup>e</sup> it is certain the worms, if not the aurelias, were administered in medicine in early ages.<sup>f</sup>

<sup>a</sup> *Prionus damicornis*. *Fab. Ent. Syst.*—*Cerambyx damicornis*. *Linn. Mant.*

<sup>b</sup> Stag beetles.

<sup>c</sup> Capricorn, or Goat beetles.

<sup>d</sup> The larvæ of the *Scarabæi* live in the trunks of decayed trees, in putrid and filthy animal substances, or in the earth. The last are the most injurious, because they destroy the roots of plants. All the known kinds of these larvæ are of an unwieldy form, and whitish colour, the skin free from hairs, and only the head and fore feet defended with a shelly covering.

<sup>e</sup> The German soldiers sometimes fry and eat silk worms. *Aldrov.*

<sup>f</sup> Silk worms dried, powdered, and put on the crown of the head, help the *vertigo* and *convulsions*; mundify or cleanse the blood, &c. &c. *Schroderus, Serapio, &c. &c.*

## COLEOPTERA.

### SCARABÆUS SACER. SACRED BEETLE.

#### SPECIFIC CHARACTER.

No scutellum. Front of the head divided into six dentations. Thorax unarmed, margin crenulated. Wing-cases smooth. Shanks of the posterior legs hairy.

SCARABÆUS SACER: excutellatus clypeo sex dentato thorace inermi crenulato, tibiis posticis ciliatis, elytris lævibus. *Linn. Syst. Nat.*  
*Fab. Ent. Syst.* 1. p. 62. 205.

Scarabæus Sacer is a native of China; it is also found in other parts of the East Indies, in Egypt, Barbary, the Cape of Good Hope, and other countries of Africa, and throughout the south of Europe.

A few remains of ancient monuments, and some fragments of historic information, preserved from an early period of the world, afford certain and interesting details of this inconsiderable creature. Those remains evince indeed but the first dawning of natural and moral philosophy on the human mind, but, connected with the history of the insect before us, are too important to be passed over in silence.

The Scarabæus was held in profound veneration by the people of Egypt.<sup>g</sup> They regarded it as a visible deity; but a more refined system of religious worship prevailed in their temples among the priests and sages.<sup>h</sup> They deemed it only the symbol of their god, and, ascribing both sexes to the *Scarab*, it became a striking emblem of a self-created and supreme first cause.<sup>i</sup>

This insect was more especially the symbol of their god Neith,<sup>k</sup> whose attribute was power supreme in governing the works of creation, and whose glory was increased, rather than diminished, by the presence of a superior being, *Phtha*, the creator. The theological definition of the two powers being independent, yet centering in one spirit, is implied by the figurative union of two sexes in the Scarab. In the latter sense it signified therefore but one omnipotent power. The Scarab, typifying Neith, was carved or painted on a

<sup>g</sup> The species worshipped by the Egyptians is precisely noted by Linnæus. *Scarabæus sacer*: and also by Olivier. *Scarabé sacré*. "Cet insecte étoit autrefois en veneration en Egypt." *Oliv.*

<sup>h</sup> *Eschenbach, Jablonfski, Savary, &c.*

<sup>i</sup> "The father, mother, male and female art thou." *Synesius, Hymn. Phtha*.—"The Egyptian spirit *Phtha* gave chaos form, and then created all things." *Jamblichus de Mysteriis, sect. 8.*

<sup>k</sup> *Neith*. The disposer of all things, &c. *Jablonfski*. "Sais," of the Delta, "the capital of its district, is a considerable city, of which Amasis was king. *Neith*, the Minerva of the Greeks, is the titular divinity." *Plato in Timæo*.—"On the door of the temple of *Neith* was engraved in hieroglyphics, 'I am what is, what was, what shall be; mortal has never raised my veil; the sun is the fruit of my womb.'" *Proclus Commentary on the Timæus of Plato, &c.*—These passages demonstrate Neith and Phtha to be two attributes of one spirit. The third attribute is Cneph, or divine goodness. *Savary*.

## COLEOPTERA.

ring, and worn by the soldiers, as a token of homage to that power who disposed of the fate of battles ;<sup>1</sup> and sculptured on astronomical tables, or on columns, in it expressed the divine wisdom which regulates the universe and enlightens man.

<sup>1</sup> Authors quote a doubtful passage in *Herapollo Hieroglyph. lib. 1.* to support this opinion. That such rings were worn by the ancient Egyptians is beyond conjecture, many remains of them, and some very perfect, have been found in the subterranean caverns and sepulchres in the Plain of Mummies near Saccara and Giza. Those which we have examined, are remarkable for the convexity, or full *relievo* of the figure sculptured on them, in some it is of the natural size of the insect, but generally smaller; the stone, cornelian, without a rim, and turning on a swivel ring of gold.

■ Linnæus says the Scarabæus sacer is sculptured on the antique Egyptian columns in Rome. “*Hic in columnis antiquis Romæ excelsus ab Ægyptiis.*” *Syst. Nat.* Does Linnæus allude to any remains of those colossal obelisks, which Augustus transported to Rome when he subjugated Egypt, or others of more recent date? It would increase the interest of our enquiries, to learn, that the Scarabæus was among the hieroglyphics, on the two very ancient obelisks, carried from Heliopolis, the city of the Sun.

The indefinite and visionary interpretations, imposed on most Egyptian hieroglyphics through a long series of ages, will barely support a few conjectures on their original signification. Those which related to local incidents, history, or the arts, are veiled in profound obscurity. The phenomena of nature, and astronomical calculations, inscribed in those characters, are scarcely better understood, though the knowledge of those sciences have been in part handed down to us from the learned Egyptians in remote ages. We are informed by ancient writers, that the Scarabæus engraved on the astronomical tables of these people, implied the divine Wisdom which governed the motion and order of the celestial bodies; that those tables were huge and massy stones, or columns of granite, with the characters and figures, large, and highly embossed; in short, such as were supposed capable of long resistance to the corroding hand of time. Among those the Scarab was probably the most conspicuous, its size gigantic, and the figure frequently repeated; for this we have observed, even on small Egyptian antiques.

Various valuable remains of tablets, with figures of the *Scarabæus sacer*, are preserved in the British Museum and other collections of antiquities in this country. Those we have examined are of various descriptions, some smaller than the insect itself, others of a monstrous size. The stones on which they are sculptured generally *green nephritic* or *jade stone*, or a kind of *basalt*, and black marble; the figure *basso relievo*, on a tablet or slab, but oftener in *relievo*, with the prominent characters of the insect very accurately defined, particularly the six dentations of the clypeo, and those of the tibiæ. The reverse of the embossed side is flat and smooth, and abounds in characters altogether unknown, though, from the number of religious objects of worship occasionally interspersed, we may presume they contain an ample store of the ancient sacerdotal language: the most remarkable were the scarab, the sceptre and eye,<sup>a</sup> the human figure with a dog's head,<sup>b</sup> the hawk,<sup>c</sup> and the Ibis,<sup>d</sup> or sacred bird. On the thorax of one fine specimen we remarked four elegant figures. One of them is holding a *cornucopia* in the left hand, and a branch in the right: this is perhaps a subordinate deity of the Nile, that river having been once found depicted on an antique Alexandrian coin, like an aged man, holding the cornucopia, and a branch of the Papyrus; denoting its abundance and produce.

The digression on the mythological history of this insect may be considered by some as a tedious deviation from the pursuit of the naturalist; with others we trust it will be more favourably received; for it proves to the unprejudiced mind how deeply the history of nature, and in the present instance the science of Entomology, involves a most important enquiry into the first philosophical opinions of the human race. The means, however trifling, must not be contemned, which illumine the most sublime of all human researches,—*The Study of Mankind.*

<sup>a</sup> *Cypris*, or the fan.

<sup>b</sup> *Anolis*.

<sup>c</sup> *Horus*, a famous deity, had three cities dedicated, called by the Greeks the cities of *Apollon*.

<sup>d</sup> The mummies of these birds are found in urns, in the subterranean galleries called the well of birds near *Saccara*, supposed from the size to be the Tantalus Ibis of Linnæus.

## COLEOPTERA.

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### SCARABÆUS LEEI.

#### SPECIFIC CHARACTER.

Without scutellum. Obscure copper colour. Under side black. Shield of the head margined.

SCARABÆUS LEEI: exscutellatus obscure cupreus subtus niger, clypeo emarginato.

*Fab. Ent. Syst.* 1. 65. 215.

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### SCARABÆUS CINCTUS.

#### SPECIFIC CHARACTER.

Without scutellum. Unarmed, black. Margin of the clytra pale. Shield of the head margined.

SCARABÆUS CINCTUS: exscutellatus muticus niger clytrorum margine pallido; clypeo emarginato.

*Fab. Ent. Syst.* 1. 69. 231.

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### CETONIA CHINENSIS.

#### SPECIFIC CHARACTER.

Shining green and gold colour. Shield of the head margined, with two spines. Posterior part of the thorax lobed. Wing-veins terminate in an acute spine.

CETONIA CHINENSIS: ænea clypeo emarginato subspinoso, thorace postice lobato, elytris acuminatis.

*Fab. Ent. Syst.* 1. p. 2. 126. 6.

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This, and the next species, are described by Fabricius, in the two new genera, Cetonia and Melolontha. They are Scarabæi of the Linnæan system. Cetonia Chinensis is a fine and very rare insect.

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### MELOLONTHA VIRIDIS.

#### SPECIFIC CHARACTER.

Above green. Beneath golden colour, or bronze.

MELOLONTHA VIRIDIS: glabra supra viridis subtus aurea. *Fab. Ent. Syst.* 1. p. 2. 160. 23.

*Oliv. Inf. tab.* 21. fig. 6. *tab.* 3. 18.

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This specimen nearly corresponds with one of the Melolontha viridis figured by Olivier, which came from the Cape of Good Hope: our insect is undoubtedly from China.

COLEOPTERA.



\* *Cetonia Chinensis.*

\* *Melolontha viridis.*





COLEOPTERA.



*Curculio Chinensis.* \*  
 \_\_\_\_\_ *barbirostris.* \*\*  
 \_\_\_\_\_ *squamosus.* \*\*\*  
 †

*Curculio longipes.*  
 \_\_\_\_\_ *verrucosus.* \*  
 \_\_\_\_\_ *pulverulentus.* \*\*  
 †

## COLEOPTERA.

---

### CURCULIO CHINENSIS.

#### GENERIC CHARACTER.

Antennæ club-shaped, and inserted in a horny proboscis or snout.

#### SPECIFIC CHARACTER.

Beak long. Thighs dentated. Body covered with yellowish powder, except a stripe of black on the sides of the thorax and wing cases: a spine on each side of the beak, at the apex.

CURCULIO CHINENSIS: longirostris, femoribus dentatis<sup>a</sup>, corpore polline flavescente oblecto, lateribus nigris, rostro utrinque spinoso.

---

This insect seems nearly allied to *Curculio mucoreus*, an Indian species, described by Linnæus, but not figured by any author: the lateral stripe of black; and the denticulations on the posterior thighs of our insect clearly removes it, however, from the Linnæan species. Among the *Curculiones* described since by Fabricius, we have not discovered any with which our species can be confounded; and deeming it a non-descript, we name it specifically *Chinensis*; a name, perhaps, too local, but expressive of the native place of our specimen; and not applied by Fabricius, in his last work, to any insect of the same genus, though that author has exhausted almost every applicable name, in the descriptions of more than four hundred of its species.

The only specimen of this curious insect we have seen, is in the possession of Mr. Drury of London, from whose extensive collection we have been liberally permitted to copy, and describe, such Insects as we considered worthy of noticing in this work.

<sup>a</sup> Except the lateral black stripes, and the rostrum, *Curculio Chinensis* is totally covered with a bright brown powder, or rather, with very minute hairs which adhere but slightly, and resemble that substance. We observe a similar farinaceous appearance on the *Curculiones*, *Laëus*, *Nitens*, &c. and especially on that gigantic beetle *Scarabæus Elephas*.

## COLEOPTERA.

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### CURCULIO LONGIPES.

#### SPECIFIC CHARACTER.

General colour blackish brown. Wing-veins ferruginous. Beak long, margined with small irregular tubercles on each side, and at the apex. Anterior legs longest.

CURCULIO LONGIPES: longirostris nigricans elytris ferrugineis, rostro emarginato, pedibus anticis longioribus. *Fab. Ent. Syst.* 1. p. 2. 395. 4.  
*Oliv. fig.* 191.

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All the specimens of this *Curculio* that have come under our inspection, are natives of China. Fabricius says it is from the Cape of Good Hope<sup>b</sup>.

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### CURCULIO BARBIROSTRIS.

#### SPECIFIC CHARACTER.

Entirely black. Beak long, and bearded. Three spines on the anterior flank of the legs.

CURCULIO BARBIROSTRIS: longirostris niger rostro barbato, tibiis anticis tridentatis. *Fab. Ent. Syst.* 1. p. 2. 418. 105.

---

Uncommonly scarce. Fabricius refers for this insect to the collection of Cramer. We have only seen the specimen from which our figure is taken.

<sup>b</sup> The inaccuracy of this remark of Fabricius will appear by comparing the descriptions and synonyms of *Curculio longipes*, in his *Species Insectorum*, with the same species in his *Entomologia Systematica*. In the first he describes *Curculio longipes*, quotes fig. 3. tab. 33. vol. 2. of Mr. Drury's work, and gives its habitat, Cape of Good Hope. In his last work he gives the same description, changes the reference from Mr. Drury's work to that of Olivier, fig. 191; but continues the other references, by which the Chinese species is probably unintentionally left as a native of Africa.

## COLEOPTERA.

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### CURCULIO VERRUCOSUS.

#### SPECIFIC CHARACTER.

Snout short, colour throughout black, with a faint brassy gloss. Wing-veins beset with striæ of elevated points, and terminated at the apex in a single obtuse protuberance.

CURCULIO VERRUCOSUS: brevirostris aeneo niger elevato punctatus elytris postice verrucosis. *Linn. Syst.*

*Nat.* 2. 618. 90.

*Fab. Ent. Syst.* 1. p. 2. 478. 353.

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This can be no other than *Curculio verrucosus*, though our specimen came from China, and that noticed by Fabricius from the Cape of Good Hope. The three elevated striæ of warts on each of the wing-veins, and the intermediate double row of impressed points, are decisive in our opinion of this species.—We have another that is mottled with clay colour, which is probably found in Africa.

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### CURCULIO SQUAMOSUS.

#### SPECIFIC CHARACTER.

Proboscis short. Entirely covered with green scales. Impressed lines on the thorax and proboscis.

CURCULIO SQUAMOSUS: brevirostris viridi squamosus rostro thoraceque canaliculatis. *Fab. Ent. Syst.* 1.

p. 2. 452. 244.

---

A small, but superb species, being totally covered with minute scales of an oblong form, and resplendent green colour, interspersed with changeable sparks of gold and crimson, in various reflections of light. This scaly covering is not unlike that of *Curculio argentatus* found in England; but of a brilliance scarcely inferior to the gem-like spangles on the *Curculio imperialis* of Brazil.—*Curculio squamosus* is represented in its natural size, in the annexed plate; and, in justice to an insect of such uncommon beauty, an additional plate is given, to exhibit its appearance in the opaque microscope.—It is extremely common in China.

## COLEOPTERA.

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### CURCULIO PULVERULENTUS.

#### SPECIFIC CHARACTER.

Entirely greyish. Head flat, and marked with longitudinal lines: an impressed canal down the middle.

CURCULIO PULVERULENTUS: brevirostris cinereus capite plano canaliculato. *Fab. Ent. Syst.* 1. p. 2. 452. 243.

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Like *Curculia squamosus* this insect is entirely black, when divested of its scaly covering. It has been supposed a variety of *C. squamosus*, but Fabricius considers them as two species, and we are of the same opinion.

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### CURCULIO PERLATUS.

#### SPECIFIC CHARACTER.

Black. Abdomen white, with elevated shining black spots. Beak short and furrowed.

CURCULIO PERLATUS: brevirostris niger abdomine albo: punctis elevatis glabris atris, rostro fulcato.  
*Fab. Ent. Syst.* 1. p. 2. 459. 271.

---

Neither this nor the two preceding species have been figured in any work. We have given a figure of the under side of this insect, to illustrate the specific character given by Fabricius.

COLEOPTERA.



*Curculio pulverulentus.*





COLEOPTERA.



*Cerambyx Rubus.* \*

*Cerambyx Reticulator.* \*

*Cerambyx Farinosus* \* \*

## COLEOPTERA.

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### CERAMBYX FARINOSUS.

#### GENERIC CHARACTER.

Articulations of the antennæ gradually decrease in size towards the end. Thorax spined or gibbous.  
Elytra narrow, and of equal length throughout.

#### SPECIFIC CHARACTER

AND

#### SYNONYMS.

Thorax spined. Shells spotted with a white farinaceous substance. Antennæ longer than the body.

CERAMBYX FARINOSUS. *Linn. Syst. Nat.* 2. 626. 24.

*Fab. Spec. Inf.* 1. p. 214. 25.

Stenocorus Farinosus: thorace spinosa piceus elytris punctis sparsis farinosis, antennis longis.

*Fab. Ent. Syst.* 1. 295. 11.

CERAMBYX CHINENSIS. *Forst. N. Sp. Cent.* 1. 39.

*Oliv. Inf.* 66. tab. 7. fig. 46.

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Among some Chinese drawings of the late Mr. Bradshaw, we observed one on which the metamorphosis of this Cerambyx seemed to be delineated. The larva was partly concealed in the hollow of a piece of decayed wood; it was of a whitish colour, with the head and tail black, as described by Fabricius.

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### CERAMBYX RUBUS.

#### GENERIC CHARACTER.

Articulations of the antennæ gradually decrease in size towards the end. Thorax spined or gibbous.  
Elytra narrow, and of equal length throughout.

#### SPECIFIC CHARACTER

AND

#### SYNONYMS.

Thorax spined, bimaculated. Base of the shells studded with small protuberances. Apex of the shells terminate in a sharp point.

## COLEOPTERA.

CERAMBYX RUBUS. *Linn. Syst. Nat.* 2. 625. 21.

LAMIA RUBUS: thorace spinoso bimaculato, elytris basi scabris apiceque mucronatis.

*Fab. Ent. Syst.* 2. 290. 89.

*Oliv. Inf.* 67. tab. 7. fig. 57.

---

This species, we find, is not uncommon in China. It is the largest of its genus that we are acquainted with from that country.

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## CERAMBYX RETICULATOR.

### GENERIC CHARACTER.

Articulations of the antennæ gradually decrease in size towards the end. Thorax gibbous or spined.

Elytra narrow, and of equal length throughout.

### SPECIFIC CHARACTER

AND

### SYNONYMS.

Thorax spined. Thorax and shells yellow brown; the first marked with longitudinal black streaks, the latter reticulated with the same colour.

LAMIA RETICULATOR: thorace spinoso nigra thorace elytrisque fulvis, thorace nigro lineato, elytris reticulatis. *Fab. Ent. Syst.* 1. p. 2. 278. 44

*Oliv. Inf.* 67. tab. 12. fig. 85.

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*Cerambyx reticulator* is a very rare species; we have never seen more than two specimens of it. It is altogether a beautiful insect; but the singular structure of the antennæ deserves particular notice: it is entirely brown except the first articulation, which is black; the second has a large verticillated tuft of black hair at the summit; at the base of this articulation it has another tuft, but smaller; and a similar tuft, but still smaller, is situated on the third and fourth articulations.



COLEOPTERA.



\* *Buprestis Villata.*

\* *Buprestis Cellata.*

London Published as the Act directs by E. Donovan, May 1. 1798.

## COLEOPTERA.

### BUPRESTIS VITTATA.

#### GOLDEN-STRIPE BUPRESTIS.

##### GENERIC CHARACTER.

Antennæ fetaceous, as long as the thorax. Head half retracted, or drawn back within the thorax.

##### SPECIFIC CHARACTER.

Elytra impressed with points or spots: marked with four longitudinal ridges, and terminated in two teeth or spines; a ribbon-like stripe of golden yellow, down each elytron.

BUPRESTIS VITTATA: elytris bidentatis punctatis: lineis quatuor elevatis viridi æneis vittaque lata aurea.

*Fab. Ent. Syst.* 1. p. 2. 186. 5.

Bupreste Bande-dorée. *Oliv. Inf.* 32. tab. 3. fig. 17.

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The Buprestides form an extensive, and most brilliant tribe of coleopterous insects. Brazil and New Holland produce some gigantic species, but none more beautiful than those of India. We need adduce no other proof of this, than *Buprestis chrysis*, *sternicorus*, *attenuata*, *ocellata*, and *vittata*. These wrought into various devices, and trinkets, decorate the dresses \* of the natives in many parts of India. The *Buprestis vittata* in particular, is much admired among them. It is, we believe, entirely peculiar to China, where it is found in vast abundance, and distributed from thence at a low price among the other Indians. The Chinese, who always profit by the curiosity of Europeans, collect vast quantities of this *Buprestis*, and other gay insects, in the interior of the country, and traffic with them.

A considerable error seems to have arisen concerning this species, and the true *Buprestis ignita* of Linnaeus. All authors, except Fabricius and Olivier, have considered the *Buprestis vittata*, and *ignita*, the same. Fabricius, in his *Species Insectorum*, refers to *Mus. Dom. Banks* only, for the *Buprestis vittata*; and to the 14th figure, plate 6, in *Sulzer's* work, for a figure of *Buprestis ignita*. In the *Entomologia Systematica* we however find the same reference to the figure of *Sulzer*, for *B. vittata*†; and, to increase the perplexity, precisely the same reference under that of *B. ignita*‡ also.

\* A pair of slippers embroidered with little pieces of the wing cases of this insect is preserved in the Leverian Museum.

† Vol. I. part 2. p. 186. 5.

‡ Vol. I. part 2. p. 152. 28.

## COLEOPTERA.

The *Buprestis ignita* of Linnæus, we imagined, was unknown in the cabinets of the curious in this country, till we discovered an insect nearly corresponding in character with it, in the collection of Mr. Drury, and which we presume is the *B. ignita*, or at least a variety of it. It has not the brilliance of colours that so eminently distinguishes *B. vittata*, but in form and size it agrees with it. The only figure of that species is given by Olivier, from a specimen formerly in the cabinet of Gigot d'Orcy, of Paris. We have examined the specimen in the cabinet of Sir J. Banks, referred to by Fabricius as *B. vittata*, and find the figure in Sulzer is of that species, as well as the specimen we have represented.

Fabricius has given as a part of the specific distinction of these insects, that *B. ignita* has *three spines* at the end of each wing case, or elytron, and *B. vittata* no more than *two*. This may form a sufficient characteristic in those species; but we must remark, that it is not so in *Buprestis ocellata*. We have two specimens that have two spines at the end of each elytron, and another with three, as Fabricius has described it. We also find several insects nearly allied to *B. vittata*, the stripe of gold on each side excepted; one of these has six teeth, another four teeth, and a third only two.

The Buprestides are supposed, for the most part, to undergo their transformations in the water, or marshy ground.

### *Canna Indica*.—*Indian flowering Reed*.

This plant is common in China, and is found also in most other parts of Asia, Africa, and America. In our climate it requires to be placed in the stove, where it produces an abundant succession of flowers throughout the summer. It bears a berry which is perfectly hard and round, of a black colour, and highly polished. It is called Indian Shot.

# COLEOPTERA.

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## BUPRESTIS OCELLATA.

### OCELLATED BUPRESTIS.

#### SPECIFIC CHARACTER

#### AND

#### SYNONYMS.

Shining green. Elytra terminate in three points: a large round yellow spot in the middle of each elytron, and two golden-red spots, one above and the other below it.

BUPRESTIS OCELLATA viridi nitens elytris tridentatis: maculis duabus aureis ocellarique flava. *Fab. Ent.*

*Syl.* 4. p. 2. 193. 30.

*De Geer Inf.* 7. 633. 30. *tab.* 47. *fig.* 12.

Bupreste Oculé. *Oliv. Inf.* 32. *tab.* 2. *fig.* 3.

*Sulz. Hist. Inf.* *tab.* 6. *fig.* 15.

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The *Buprestis ocellata* is a native of China, and is very rare: specimens of it have been found in parcels of the common sort. Olivier says it is from *Chandernagore* in the East Indies. Mr. Drury has an extraordinary variety of this insect from China, in which the two spots unite at the future so as to form only one large spot on the back when the wing cases are closed.

These spots on the wing cases are strikingly characteristic of this species; at least we have not observed them in any other of the *Buprestis* genus. They are usually situated in the centre of each elytron; are somewhat pellucid, and in fine specimens are cream colour, surrounded with a crimson circle. These spots are sometimes brown; probably they become so after the insect dies.

## COLEOPTERA.

Our figures represent this insect with expanded wings; one of those is designed to exhibit the beautiful appearance of the under surface, particularly the effulgent abdomen and purple colour of the interior part of the shells: this is seen hovering over the flower of the *Canna Indica*: the other represents the upper surface.



COLÉOPTERA.



*Mylabris Cichorei.*

*Sagra femorata.*

## COLEOPTERA.

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### TENEBRIO FEMORATUS.

#### GENERIC CHARACTER.

Antennæ like a string of beads, extreme articulation roundish. Thorax plano-convex, margined. Head porrected. Elytra rather stiff.

#### SPECIFIC CHARACTER.

Greenish copper colour. Thighs and flanks of the posterior legs dentated.

SAGRA FEMORATA: viridi ænea femoribus tibiisque posticis dentatis. *Fab. Ent. Syst. T. 1. p. 51, 55. 1.*

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This insect may be referred to the Linnæan genus *Tenebrio*. It is described by Fabricius in the *Species Insectorum*, in the new genus *Alurnus*; in the *Entomologia Systematica* of the same author, it is removed to another new genus, *Sagra*, and its former specific name, *femoratus*, necessarily altered to *femorata*. As the characters of these Fabrician genera are taken from the palpi, maxilla, and labium, we prefer the more obvious characters of the Linnæan genus.

The figures quoted by Fabricius differ, in some respects, from the Chinese specimens. Sulzer represents it of a green colour, without a tinge of red purple, or copper colour, so predominant in every specimen we have seen. Our insects are of two kinds: one is of a glowing purple, resplendent as metal, and changeable to green or yellow; the other is purple also, but not quite so vivid, being tinged with green.

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### MELOE CICHOREI.

#### GENERIC CHARACTER.

Antennæ moniliform: last joint oblong. Thorax roundish. Elytra soft and flexible. Head inflexed and gibbous.

#### SPECIFIC CHARACTER.

Black. Wing-cases yellow, with three transverse black bands.

MELOE CICHOREI: nigra elytris flavis: fasciis tribus nigris. *Linn. Syst. Nat. 2. 680. 5.*

Mylabris Cichorei. *Fab. Ent. Syst. T. 1. p. 2. 88. 2.*

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This insect is very common in China, and some other parts of the East Indies. The small specimen is

## C O L E O P T E R A.

rare, but is, probably, only a variety of the other sort. According to Olivier, the *Meloe cichorei* is used by the Chinese in their medical preparations instead of the *Cantharis vesicatorius* of the Europeans, and is supposed to be more efficacious in certain cases. The same author quotes a passage in *Dioscoride Mat. Med. Lib. 2.* to prove that it is also the *Cantharides* of the ancients <sup>i</sup>.

<sup>i</sup> “ Les Cantharides des anciens et celle des Chinois ne sont pas les mêmes que celles des Européens. Les Chinois emploient le Mylabre de la Chicorée, &c. &c.”—“ The Cantharides of the ancients, and those of the Chinese, are not the same as ours. The Chinese employ the *Mylabre de la Cichorei*, and it appears from *Dioscoride Mat. Med. Lib. 2. Cap. 65*, the ancient Cantharides were the same as those now used by the Chinese.” “ The most efficacious sort of Cantharides,” says Dioscoride, “ are of many colours, having yellow transverse bands; the body oblong, big, and fat; those of only one colour are without strength.” The description Dioscoride has given, does not agree with our species of Cantharides, as they are of a fine green colour, but is more applicable to the *Mylabre de la Cichorei*, which is very common in the country where Dioscoride lived. *Olivier's Entomologie, ou Hist. Nat. des Insectes. Vol. I. Introd.*

The Cantharides of the ancients, are by no means to be confounded with those of medical writers in the last century. By the term Cantharides, in an European *Pharmacopœia*, we understand the *Meloe vesicatorius* \* of Linnæus, an insect whose medicinal properties are very generally known †. The Cantharides of the ancients can scarcely be ascertained; it was a term indiscriminately applied to several kinds of insects, and too often without regard to their physical virtues. Pliny speaks of the *Cantharis* as a small beetle that eats and consumes corn; and of another that breeds in the tops of ashes and wild olives, and shines like gold. The ancients were certainly well acquainted with our common sort, though it is confounded with others in a general appellation ‡. *Hippocrates, Galen, Pliny, Matthiæus*, and other physical writers of antiquity, treat of the medicinal uses of Cantharides; but it is not clear that they alluded to only one species §.

\* Geoffroy calls this a *Cantharis*. The Linnæan *Cantharis* is a distinct genus.

† Applied externally to raise blisters. It is a violent poison taken inwardly, except in small portions.

‡ The common sort has been called *Musca Hispanica* by some Latin authors, and hence Spanish fly by Boyle.

§ Olivier endeavours to prove that the *Mylabris Cichorei* is the ancient Cantharides; the authority of his opinion is credible, and the inference natural, if not conclusive. But if it were in use, so also might the common sort, for Dioscoride, whom he quotes, mentions those of only one colour also. The ancients often confounded the term *Scarabæus* with *Cantharis*; but whether because they knew that the common kinds of *Scarabæi* produce the same effects as the *Cantharis*, is uncertain.—The *Scarabæus auratus*, and *Melolontha*, several *Coccinellæ*, *Cimex nigro-lineatus*, &c. &c. have a place in the *Materia Medica* as *Cantharides*.



HEMIPTERA.



\* *Mantis Oculata.* *Mantis Flabellicornis.* \*

## HEMIPTERA.

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### MANTIS OCULATA. CORNUTED - EYE CAMEL CRICKET.

#### GENERIC CHARACTER.

Head slightly attached to the thorax, unsteady: the mouth armed with jaws and palpi. Antennæ setaceous.

#### SPECIFIC CHARACTER

AND

#### SYNONYMS.

Thorax filiform, or like a thread, triangular. Eyes oblong, prominent, and terminated each in a sharp spine.

MANTIS OCULATA thorace triangulo filiformi, oculis oblongis porrectis acuminato spinosis. *Fab. Ent. Syst.*  
*T. 2. 19. 26.*

Mantis bicornis thorace lævi, capite bipartito subulato. *Linn. Syst. Nat. 2. 691. 11.*

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Two figures of the Mantis, very much resembling our species, is given in the work of Stoll on *Cicadæ*, &c. one kind he calls *La Mante étroitement cornue*, the other *La Mante Chinoise étroites cornue*. The first is from the coast of Coromandel and Tranquebar, the other, as its name implies, is a Chinese insect. We cannot discover any material difference between these figures and our specimen, and are inclined to consider them altogether as one species.

Few of the *Cicadæ* and *Locustæ* described by Fabricius, in his *Species Insectorum*, have any reference to figures, because a very small number of them had been figured till Stoll published his work on those genera. Stoll has occasion to mention with regret, that Fabricius has scarcely noticed any of his plates. It is a considerable disadvantage to the works of that author, as well as to the naturalist that consults them, that no scientific names, or definitions, are given to the figures of many rare insects included amongst them.

The Mantis Oculata of Fabricius is an African insect, and was described from the collection of the Right Hon. Sir J. Banks, Bart. we have compared our Chinese specimen with it, and find it is precisely the same species.

## HEMIPTERA.

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### MANTIS FLABELLICORNIS.

#### FAN-HORNED CAMEL CRICKET.

##### SPECIFIC CHARACTER.

A broad membrane on each side of the thorax, next the head. Anterior thighs terminate in a spine, the second joint beset with spines, and furnished with a lobe on one side. Antennæ pectinated.

MANTIS FLABELLICORNIS: thorace apice dilato membranaceo, femoribus anticis spina terminatis reliquis lobo, antennis pectinatis. *Fab. Ent. Syst. 2. p. 16. sp. 16.*

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This Mantis is described by Fabricius only. Stoll has given the figure of an insect not unlike it in his publication; and we have seen a specimen similar to it, which was found by Professor Pallas near the Caspian sea. It is allied to Mantis Gongyloides, a native of Africa and Asia, but bears a closer affinity to Mantis Pauperata <sup>a</sup> from Java, Molucca, and perhaps other islands in the Indian sea.

Fabricius enumerates fifty-one species of this genus in his last system; a considerable portion of these are from Asia: had he included the lately discovered kinds in America and New Holland, his genus would have been far more comprehensive. Few naturalists have had the opportunity of observing the manners of these creatures in distant countries; nor can we always rely on the information those few have given. Of the European species we can speak with more precision, because some indefatigable naturalists have attended minutely to them; Roefel in particular has treated at considerable length on the manners of the Mantis Religiosa of Linnaeus.

Descriptions can only convey an imperfect idea of the extraordinary appearance of many creatures included in the Mantis and Locusta genera. Among them are found species that bear a similitude to the usual forms of other insects; but, from these we almost imperceptibly descend to others, bearing as strong a similitude to the vegetable part of creation; seeming as if Nature designed them to unite the appearance of a vegetable with the vital functions of an animal, to preserve them from the ravages of voracious creatures, or to connect that chain of progressive and universal being, which

“The great directing MIND of ALL ordains.”

Many of these creatures assume so exactly the appearance of the leaves of different trees, that they fur-

<sup>a</sup> Figured by Stoll under the name of *La Mante Goutteuse Brune*?

## HEMIPTERA.

with the entomologist with unerring specific distinctions; thus we have *L. citrifolia*, *laurifolia*, *myrtifolia*, *oleifolia*, *graminifolia*, and others, equally expressive of their resemblance in form, and colours, to the leaves of those respective plants. Travellers in countries that produce these creatures, have been struck with the phenomenon, as it must appear, of animated vegetable substances; for the manners of the Mantis, in addition to its structure, are very likely to impose on the senses of the uninformed. They often remain on the trees for hours without motion, then suddenly spring into the air, and, when they settle, again appear lifeless. These are only stratagems to deceive the more cautious insects which it feeds upon; but some travellers who have observed it, have declared they saw the leaves of those trees become living creatures, and take flight.

M. Merian informs us of a similar opinion among the Indians, who believed these insects grew like leaves on the trees, and when they were mature, loosened themselves and crawled, or flew, away. From the credulous, and unscientific, marvellous reports of such extraordinary creatures may be expected; but, to these we must add the authority of a naturalist, whose works are a valuable addition to our present knowledge of the history of nature: these are the works of Pifo <sup>b</sup>.

“Those little animals,” says that author, “change into a green and tender plant, which is of two hands breadth. The feet are fixed into the ground first; from these, when necessary humidity is attracted, roots grow out, and strike into the ground; thus they change by degrees, and in a short time become a perfect plant. Sometimes only the lower part takes the nature and form of a plant, while the upper part remains as before, living and moveable: after some time the animal is gradually converted into a plant. In this Nature seems to operate in a circle, by a continual retrograde motion.”

Has the father of inventive romance outdone this account of Pifo in his well-known extravagant poetical effusions <sup>c</sup>? It may be imagined he has not; but before we dismiss his account with a hasty

<sup>b</sup> *Gulielmi Pifonis, Amstelr. 1657.*

<sup>c</sup> *Luna quater junctis implêrat cornibus orbem, &c. OVIDII Metamorph.—Sorores Phaëthontis in Arbores.*

Four times, revolving, the full moon return'd,  
So long the mother and the daughters mourn'd;  
When now the eldest, Phaëthusia, strove  
To rest her weary limbs, but could not move;  
Lampetia would have help'd her, but she found  
Herself withheld, and rooted to the ground:  
A third in wild affliction, as she grieves,  
Would rend her hair, but fills her hands with leaves:  
One sees her thighs transform'd, another views  
Her arms shot out, and branching into boughs.  
And now their legs, and breasts, and bodies, stood  
Crusted with bark, and hardening into wood;  
But still above were female heads display'd,  
And mouths, that call'd the mother to their aid.

What could, alas! the weeping mother do?  
From this to that with eager haste she flew,  
And kiss'd her sprouting daughters as they grew:  
She tears the bark that to each body cleaves,  
And from the verdant fingers strips the leaves:  
The blood came trickling where she tore away  
The leaves and bark: the maids were heard to say,  
“Forbear, mistaken parent, oh, forbear!  
A wounded daughter in each tree you tear:  
Farewel for ever.” Here the bark increas'd,  
Clos'd on their faces, and their words suppress'd.

ADDISON'S *Transf. Phaeton's Sisters*  
*transformed into Trees.*

## HEMIPTERA.

cenfure, let us attend to the opinion of a few authors, nearly contemporary with himfelf: we find thefe collected in the criticisms of Roefel on that paſſage.

From thefe it appears that the works of Piſo were much admired when firſt publiſhed, but we rely leſs implicitly on the information it contains, than his readers in the laſt century. Roefel treats his account with more than merited ſeverity; not becauſe he could contradict the relation of Piſo, but, becauſe he had never obſerved the ſame circumſtance attend the Wandering Leaf, or Mantis Oratoria, in Europe<sup>d</sup>. This reaſoning is neither ſo concluſive, or liberal, as we ſhould expect from Roefel; and more eſpecially as he afterwards deſcribes even the firſt ſymptom of the transformation as related by Piſo. When he ſpeaks of the death of the European ſpecies his words are, “As their diſſolution approaches, their green eyes become brown, and they unavoidably loſe their ſight: they remain a long while on the ſame ſpot, till at laſt they fall quite exhausted and powerleſs, as if aſleep.” What is this but ſubſtantiating part of the evidence of Piſo, which he has laboured before to diſcredit? As to the change after they remained long on the ground, ſuch as ſending forth fibres, roots, and ſtems, from the body of the inſect, it is only aſtoniſhing ſuch a well-informed naturaliſt ſhould have deemed it matter of ſurpriſe. Could he be ignorant of the many inſtances that occur, of animal ſubſtances producing plants<sup>e</sup>? or was he not informed that the pupa which commonly ſends forth a bee, a waſp, or cicada, has ſometimes become the nidus of a plant, thrown up ſtems from the fore part of the head, and changed in every reſpect into a vegetable, though ſtill retaining the ſhell and exterior appearance of the parent inſect at the root<sup>f</sup>? We own at firſt ſight with Roefel that the account of Piſo ſeems “an inattentive and confounded obſervation,” but that an inſect may ſtrike root into the earth, and, from the co-operation of heat, and moiſture, congenial to vegetation, produce a plant of the *cryptogamia* kind, cannot be diſputed. We have ſeen ſpecies of *clavaria* both of the undivided and branched kinds, four times larger than the inſect from which they ſprang; and can we then deny that the inſect mentioned by Piſo might not produce a plant of a proportionate magnitude? In ſhort, are we ſo well acquainted with the productions of Braſil as to contradict any of his aſſertions, concerning this transformation? Piſo does not ſay of what kind this vegetable was; it muſt ſurely be of the fungi

We quote this part of the poem at length; for as we peruſe it, every ſucceſſive line bears a ſtronger ſimilitude to the wonderful transformation of the Mantis as related by Piſo; we might be almoſt tempted to condemn the deſcription of the naturaliſt as a ſervile copy of Ovid’s verſes, if the ſimilar transformation of other inſects above noticed, had not occurred to the knowledge of every entomologiſt.

<sup>d</sup> Among the annotations on the laſt edition of Roefel’s *Inſekten Beſchreibung* we find one relating to this part of the works of Piſo. “*Der ſeel Her geheime Rath Trew*, &c. Counſ. Trew aſſures Mr. Roefel that Piſo not only very often gave out the credible obſervations of others, as his own, but himſelf believed the moſt incredible relations, and pretended to be an eye witneſs thereof.” We quote this in juſtice to the remarks of Roefel. *Note in page 10, ſection Das Wandende Blat.*

<sup>e</sup> Such as *Mucor cruſtaceus*, &c.

<sup>f</sup> Specimens of theſe vegetated animals, are frequently brought from the Weſt Indies; we have one of the cicada from the pupa, as well as others produced from waſps and bees in the perfect or winged ſtate. Mr. Drury has a beetle in the perfect ſtate, from every part of which, ſmall ſtalks and fibres have ſprouted forth; they are very different from the tufts of hair that are obſerved on a few coleopterous inſects, ſuch as the *Bupreſtis falicularis*, of the Cape of Good Hope; they are certainly a vegetable production.

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kind: reasoning then from analogy, it might be an unknown species of *clavaria* with numerous and spreading branches; and, finally, the colour of his plant, on which authors lay much stress, might be green, though a colour not so predominant in that tribe of vegetables as some others.

The largest and most interesting of the Indian species of Mantis is found in the isle of Amboyna. Stoll contradicts the account of *Renard* g, who says these creatures are sometimes thirteen inches in length; but we have a specimen almost of that size. It is related by Renard, and others, that the larger kinds of Mantises go in vast troops, cross hills, rivers, and other obstacles that oppose their march, when they are in quest of food. If they subsisted entirely on vegetables, a troop of these voracious creatures would desolate the land in their excursions; but they prefer insects, and clear the earth of myriads that infest it: if these become scarce from their ravages, they fight and devour one another. When they attack the plants, they do great mischief. It is said of some Locusts and Mantises that the plants they bite wither, and appear as if scorched with fire: we have not heard of this pestilential property in any of the larger species of Mantises.

Of the smaller kinds, the Mantis Oratoria is the most widely diffused, being found in Africa and Asia as well as in all the warmer parts of Europe. These creatures are esteemed sacred by the vulgar in many countries, from their devout or supplicating posture. The Africans worship them; and their trivial names in many European languages imply a superstitious respect for them h.

England produces no species of this tribe. The entomologists in this country must consequently rely on the accounts of those, who have observed them in other parts of the world. We shall select a few remarks from Roefel's extensive description of Mantis Oratoria and Gongyloides, because, if we may presume from the analogy they bear in form to Mantis Flabellicornis, the history of one will clearly elucidate that of the other.

Roefel says, some of the Mantises are local in Germany; they are found chiefly in the vintages at Moedting in *Moravia*, where they are called *Weinhandel* i. The males die in October, the females soon after k. The young brood are preserved in the egg state, in a kind of oblong bag, of a thick spongy substance; this bag is imbricated on the outside; it is fastened lengthwise to the branch of some plant l. As the eggs ripen they are protruded through the thick substance of the bag, and the larva, which are about half an inch in length, burst from them. Roefel, wishing to observe the gradual progress of these creatures, to the winged state, placed the bag containing the eggs in a large glass, which he closed, to prevent their escape. From the time they were first hatched they exhibited marks of a savage disposition. He put different sorts of plants into the glass, but they refused them, to prey on one another: this determined him to supply them with other insects to eat: he put *ants* into the glass to them, but they then betrayed as much cow-

g Poissons des Moluques par M. Renard, Amsterl. 1754.

Probably a provincial term for a dealer in wine.

h Louva Dios by the Portuguese. Presque Dieu by the French.

k Goetz, in his Beytrage, observes, that they live sometimes ten years.

l To that of the vine in Mantis Oratoria.

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ardice, as they had barbarity before; for the instant the Mantes saw the ants they tried to escape in every direction. By this Roefel found the ants were the greatest persecutors of the Mantes. He next gave them some of the common musca (house flies), which they seized with eagerness in their fore claws, and tore in pieces: but, though these creatures seemed very fond of the flies, they continued to destroy one another through savage wantonness. Despairing at last, from their daily decrease, of rearing any to the winged state, he separated them into small parcels in different glasses; but, here, as before, the strongest of each community destroyed the rest.

Another time, he received several pair of Mantes in the winged state; profiting by his former observation, he put each pair [a male and female] into a separate glass, but they still shewed signs of an eternal enmity towards one another, which neither sex nor age could soften; for the instant they were in sight of each other, they threw up their heads, brandished their fore legs, and waited the attack: they did not remain long in this posture, for the boldest throwing open its wings, with the velocity of lightning, rushed at the other, and often tore it in pieces with the crockets and spines of the fore claws. Roefel compares the attack of these creatures to that of two huffars; for they dexterously guard and cut with the edge of the fore claws, as those soldiers do with their sabres, and sometimes at a stroke, one cleaves the other through, or severs its head from the thorax. After this the conqueror devours his vanquished antagonist.

We learn from Roefel also, the manner in which this creature takes its prey, in which respect we find it agrees with what is related of the extra European species. The patience of this Mantis is remarkable, and the posture to which superstition has attributed devotion, is no other, than the means it uses to catch it. When it has fixed its eyes on an insect, it very rarely loses sight of it, though it may cost some hours to take. If it sees the insect a little beyond its reach, over its head, it slowly erects its long thorax, by means of the moveable membranes that connect it to the body at the base; then, resting on the four posterior legs, it gradually raises the anterior pair also; if this brings it near enough to the insect, it throws open the last joint, or crocket part, and snaps it between the spines, that are set in rows on the second joint. If it is unsuccessful, it does not retract its arms, but holds them stretched out, and waits again till the insect is within its reach, when it springs up and seizes it. This is the uncommon posture before alluded to. Should the insect go far from the spot, it flies, or crawls after it, slowly on the ground like a cat, and when the insect stops, erects itself as before. They have a small black pupil or sight which moves in all directions within the parts we usually term the eyes, so that it can see its prey in any direction without having occasion to disturb it, by turning its head.

The most prevalent colour of this tribe of insects is fine green, but many of these fade or become brown after the insect dies: some are finely decorated with a variety of vivid hues; the most beautiful of these, that we have seen, are from the Moluccas.



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\* *Gryllus vittatus.*

\* *Gryllus nasutus.*

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### GRYLLUS NASUTUS.

#### GENERIC CHARACTER.

Head inflected, armed with jaws, and furnished with palpi. Antennæ either setaceous or filiform. Wings wrapped round the body, and concealed under the elytra. Feet armed with two nails or crochets.

*Acridæ.*

#### SPECIFIC CHARACTER.

Head conic. Antennæ ensiform, or sword shaped. Body green.

GRYLLUS NASUTUS: capite conico, antennis ensiformibus, corpore viridi. *Linn. Syst. Nat.* 2. 692. 1.

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This species is found in Africa, Asia, and the south of Europe. Its varieties are numerous; and in size and colour depends on the climate they breed in. Sulzer represents it with red wings: in the Chinese specimens these are tinged with green.

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### GRYLLUS VITTATUS.

#### SPECIFIC CHARACTER.

Head prominent, testaceous. A silver stripe on each side of the head and thorax, and along the posterior thighs.

TRUXALIS VITTATUS: capite prominulo testaceo capite thorace femoribusque posticis vitta laterali argentea. *Fab. Syst. Ent. T.* 2. p. 27. 3.

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*Gryllus vittatus* has not been figured by any author. A single specimen of it has been recently brought from China, and is in the possession of Mr. Francillon.

## HEMIPTERA.

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### GRYLLUS GRYLLOTALPA.

#### MOLE CRICKET.

*Achetæ.*

#### SPECIFIC CHARACTER.

Wings much longer than the elytra, and when folded, appear like tails. Anterior pair of feet palmated.

GRYLLUS GRYLLOTALPA: alis caudatis elytro longioribus, pedibus anticis palmatis.

*Linn. Syst. Nat.* 2. 693. 10.

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This differs in no respect from the European species of the same name, except in size and colour. The Mole Cricket of this country, for example, being twice as large, and more of a mouse colour. Mr. Abbot has sent us a variety similar to the Chinese sort, but of a darker colour, from North America.

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### GRYLLUS ACUMINATUS.

*Tettigoniæ.*

#### SPECIFIC CHARACTER.

Thorax roundish, emarginated. Vertex subulatus, or awl shaped. Wings greenish, and of equal length.

GRYLLUS ACUMINATUS. *Linn. Syst. Nat.* 2. 696. 23.

Locusta Acuminata: thorace rotundato utrinque emarginato, vertice subulato, alis virescentibus æqualibus.

*Fab. Ent. Syst. T.* 2. p. 39. *Sp.* 22.

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Inhabits China and every other part of India.

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*Gryllus flavicornis* \* *Gryllus Gryllotalpa*.





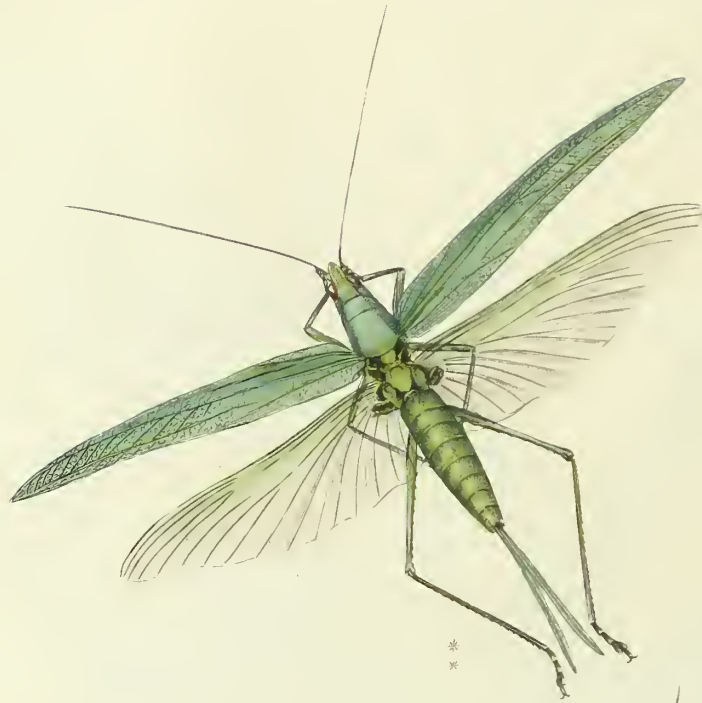
LEPIDOPTERA.



*Gryllus morbillosus.*



HEMIPTERA.



\* *Locusta perspicillata*.

\*\* *Locusta acuminata*.

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### GRYLLUS PERSPICILLATUS.

#### SPECIFIC CHARACTER.

Thorax deflexed. Wing cales concave, green: a process at the base of each that fold one over the other; the lower one transparent, or glassy: upper one coriaceous.

LOCUSTA PERSPICILLATA: thorace deflexo, elytris concavis viridibus: basi ocello dorsali fenestrato.

*Fab. Ent. Syst. 2. p. 36. 10.*

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Fabricius erroneously describes this as a native of America. It is not figured elsewhere.

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### GRYLLUS FLAVICORNIS.

*Locustæ.*

#### SPECIFIC CHARACTER.

Upper part of the thorax carinated or keeled, green, without spots. Base of the wings red. Posterior thighs red, with yellow teeth.

GRYLLUS FLAVICORNIS: thorace subcarinato viridis elytris immaculatis, alis basi rufis, tibiis posticis sanguineis flavo ferratis. *Fab. Ent. Syst. T. 2. p. 52. 23.*

Described by Fabricius; but not figured. It is abundant in China.

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### GRYLLUS MORBILLOSUS.

#### SPECIFIC CHARACTER.

Thorax square, warted, bright red. Wing cales fuscous, with white spots. Wings red.

GRYLLUS MORBILLOSUS: thorace quadrato verrucoso rubro, elytris fuscis albo punctatis, alis rufis.

*Linn. Syst. Nat. 2. 700. 38.*

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The *Gryllus morbillosus* appears in the early addition of the *Systema Naturæ*, and the works of Roefel, as an Indian species: Mr. Drury assures us he has received it several times from China. Another sort is

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also found at the Cape of Good Hope, which is rather larger and deeper in colour than the Chinese variety.

When this insect is at rest, the wings are folded, and much of its beauty is concealed: but when these are expanded, its appearance is altogether magnificent. It has nothing of the shining and metallic splendour of the Coleopterae, for its colours are translucent, and assume their richest hues when they pass before the light. The elytra are purple, variegated with yellow: the wings of a glowing crimson, spotted with black. The abdomen is surrounded with alternate zones of black and yellow, and the legs are throughout of an elegant scarlet, inferior only in brightness to the coral red of the head and thorax. Upon the whole, this species is embellished with such a profusion of various and beautiful colours, that it may be considered as a most splendid example of the Hemipterous order of insects. It is represented on the *Iris Chinenfis* in a flying position.

This is not supposed to be a numerous species in China; on the contrary, it is probably uncommon. Several others of the locust are abundant in that country, and in seasons favourable to their increase, do incredible mischief<sup>k</sup>. Both the *Gryllus tartaricus*, and *Gryllus migratorius*, inhabit Tartary on the northern confines of China, from whence, at certain periods, they descend like an impetuous torrent over the neighbouring countries in quest of food, strip the earth of verdure, and scarcely leave the vestige of vegetation behind them. The *Gryllus migratorius*, whose myriads are said to darken the face of heaven in their flights, sometimes direct their course westward; cross rivers, sea, and an immense extent of country, till they reach Europe; and though many are lost in these bold migrations, the survivors are in sufficient numbers to commit vast depredations. This species has been known to visit England<sup>l</sup>, but not in any abundance. In Little Tartary, and the European provinces of Turkey: in Italy, and in Germany<sup>m</sup>, they do great mischief in these migrations. The *Gryllus flavicornis* and *nasutus*, are two other abundant species in China, and no doubt there are many other common kinds in that country we are at present unacquainted with. The locust is only detrimental when in immense numbers, for in China, as in other eastern countries, they are considered as an article of food, and regularly exposed for sale in the public markets<sup>n</sup>.

<sup>k</sup> “Famines sometimes happen in this part of the province. In some seasons inundations, produced by torrents from the mountains, and as often the depredations of locusts are causes of this disaster.” *Vide Sir J. Staunton, Chap. on Tien-sing.*

<sup>l</sup> The last appearance of this species in England was in 1748. We have a specimen of it from Smyrna, Germany, and China, and deem it too common and general an inhabitant to merit a figure as a Chinese insect.

<sup>m</sup> Roefel speaks of this locust infesting the provinces of Wallachia, Moldavia, and Transylvania, in such immense numbers, in the years 1747, 1748, and 1749, that an *Imperial and Royal Hungarian edict* was issued, with printed instructions for the best means of exterminating them. *Vide Der Heuschrecken-und Grillensammlung, &c. &c. Vol. II. page 193.*

<sup>n</sup> Sir G. Staunton likewise speaks of “a large species of *Gryllus*” that is kept in cages for amusement in China, and was exposed for sale, with other insects, in the shops of Hai-ten. Neither the species of this, or the locusts noticed in the preceding chapter, are mentioned.



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*Fulgora Candalaria* C.

London Published as the Act directs by E. Donovan, Feb 1. 1798.

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### FULGORA CANDELARIA.

#### CHINESE LANTERN-CARRIER.

##### GENERIC CHARACTER.

The forehead elongated. Antennæ below the eyes: consist of two articulations. The beak, or rostrum, is bent inwards under the body.

##### SPECIFIC CHARACTER

##### AND SYNONYMS.

Trunk curved upwards towards the end. Shells green with yellow marks. Wings yellow, black at the tips.

FULGORA CANDELARIA: fronte rostrata adscendente, elytris viridibus luteo maculatis, alis flavis apice nigris.

*Linn. Syst. Nat.* 2. 703. 3. *Fab. Ent. Syst.* t. 4. p. 2. sp. 4.

*Der Fleinere Asiatische oder Chinesische Lanternen-Trager.* *Roes. Inf.* 2.

*Gryll.* 189. tab. 30.

*Acta Holm.* 1746. 63. tab. 1. fig. 5, 6.

*De Geer Inf.* 3. 197. 2.

*Edw. Av.* tab. 120.

*Sulz. Inf.* tab. 10. fig. 62.

*De Gewapende Cicade.* *La Cigale armée.* *Stoll. Cicad.*

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The phenomena resulting from the properties and effects of light, having engaged the attention of the earliest philosophers, we must conclude, that phosphorical appearances, and those especially of animated bodies, could not fail to attract their particular notice. Indeed it is evident, from the writings of the accurate observers of nature in remote ages, that they were acquainted with certain insects that have the property of shining in the night. These were known only by general terms, expressive of that property; yet it is probable that some of the Linnæan lampyrides, which are abundant in the south of Europe, as well as in Asia, and some parts of Africa, were the first of the illuminated insects known to them<sup>a</sup>. Some of the males which are furnished with wings, and are illuminated like the females, were striking objects of natural history, and could scarcely have escaped their notice. The Greeks included all shining insects under the name lampyris; and the Latins called them cicindela, noctiluca, luciola, lucernata, &c. Whether any of the *Fulgoræ* were known to the ancients is uncertain: probably they were not, the most remarkable species being peculiar to the warmest parts of America. Asia, once the seat of learning, does indeed produce a few species; but we have no account of these in ancient natural history.

<sup>a</sup> The lampyris of *Pliny* is expressly the insect with a shining tail.

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The Fulgoræ seem to have been entirely unknown in Europe till the latter end of the last century; when two writers published descriptions and figures of *Fulgora Lanternaria*. Madame Merian, of Holland, in her splendid work on the Metamorphosis of the Insects of Surinam, and Dr. Grew, of London, in his Rarities of Gresham College.

Reaumur<sup>b</sup> is the next author who described the *Fulgora Lanternaria*, and after him Roefel, in his "Amusing History (or recreation) of Insects<sup>c</sup>." This brings us to the period in which *Fulgora Candelaria*, our Chinese species, was first known in Europe: a circumstance of much importance to naturalists at that time, because the first mentioned species was a solitary example of its singular genus. The transactions of the Stockholm academy includes the earliest figure and description of this extraordinary insect; from these Linnæus described it in his *Systema Naturæ*; but his arrangement has undergone many alterations since that time. At first he included it among the Coleopterous insects; then he called them Lanternariæ; and again, they were classed with the Cicadæ. These have been since corrected, and a new genus formed of insects with elongated trunks on their foreheads exclusively, under the name Fulgora, a name that has been adopted by later authors, and finally by Fabricius.

Roefel has given three figures and a description of the *Fulgora Candelaria*; from his account we learn that it was known in England before he was acquainted with it. On its peculiar qualities, he observes he must be entirely silent, because he had been unable to derive any information concerning it; his description is notwithstanding extremely prolix, and occupies four quarto pages; as he notices every trifling particular of the spots, colours, &c. of the insect. We have selected the most interesting passage, because it clearly marks the progressive advancement of the knowledge of natural history in Europe, so late as the middle of the present century.

"According to my promise," says Roefel<sup>d</sup>, "I now produce the second sort of Lantern-carrier, which I never saw before; and of which I have never read in any work on insects. The scarcer however it may be, the more I am indebted to Mr. Beurer, apothecary of this place<sup>e</sup>, &c. for the permission he has granted me to draw and enrich my collection with it. Mr. Collinson has sent it to him from London, under the name *Lanternaria Chinenfis*, for which reason I have called it the Asiatic or Chinese Lantern-carrier." Roefel being a respectable entomological writer of his time, we must infer that *Fulgora Candelaria* was extremely scarce in Europe when his plate and descriptions were published. The commercial concerns of Europeans with the Chinese having greatly increased since that period, has facilitated many inquiries concerning the natural productions of China; and amongst a variety of other insects that are now usually brought from that country, specimens of *Fulgora Candelaria* are not uncommon. In China few insects are found in greater abundance.

<sup>b</sup> Memoires pour servir a l'Histoire des Insectes. 1734.

<sup>c</sup> Insecten Belustigung.

<sup>d</sup> Versprochener massen liefere ich nunmehr die zweite Sorte des Lanternen-Tragers, &c. Vol. 1. pl. 3c. Locust, page 189.

<sup>e</sup> Nuremberg.

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The authors who have figured or described the Chinese Fulgor, since Roefel, are De Geer<sup>f</sup>, Seba<sup>g</sup>, Sulzer<sup>h</sup>, and our countryman Edwards<sup>i</sup>. De Geer gives a very concise description, and no figure; and Seba merely observes, in his description of Fulgora Candelaria, "La Chine produit une autre espèce du même genre mais beaucoup plus petite et toute différente." Edwards has given a figure of it in one of the plates in his work of Birds. His description is certainly uninteresting<sup>k</sup>.

Having noticed the several authors who have treated on this insect, we come to consider the peculiar properties of its singular genus; and among these we find the most astonishing that insects can possess, that of emanating light: not merely a momentary shining appearance, as is produced by many viscous substances, but a clear and constant resemblance to the element, fire; and capable of diffusing light to surrounding objects, though totally destitute of every principle that can do mischief. To the unphilosophical mind it appears at first impossible, and it cannot fail to astonish the best informed. Indeed, some readers might be inclined to doubt the veracity of travellers in foreign countries, who have seen a vegetable<sup>l</sup> or an animal produce light, if our own country could not supply us with abundant analogous proofs of such phenomena. The presence of this animated phosphorus, if we may so express it, is observed on several insects that are natives of England: it is needless to enumerate them, because the most striking example must be recollected by every rural inhabitant, or admirer of poetical simplicity.

—————" On every hedge  
" The glow-worm lights his gem, and thro' the dark  
" A moving radiance twinkles."

THOMSON.

The account which Madame Merian gave of the effect of the light produced by the *Fulgora Lanternaria*<sup>m</sup> was greatly discredited, though Dr. Grew had related some surprising particulars of a specimen of it

<sup>f</sup> De Geer. Histoire des Insectes. 1752.

<sup>g</sup> Seba. Thesaurus Naturæ. 1765.

<sup>h</sup> Kennzeichen der Insecten (Characteristics of Insects). 1761.

<sup>i</sup> Edwards's Birds, 4to. London, 1743.

<sup>k</sup> "I take it to be a kind of fire-fly, and that part on the head the lantern. The wings are all flat, and the upper ones hard and smooth, like those of the *Beetle* or *Scarabæi* kind, of which it is a species." Edwards.

<sup>l</sup> An instance of this occurs in the south of Europe. An account in the Philosophical Transactions relates of the *Dictamnus Albus* (*Fraxinella*), that "in the still evenings of dry seasons it emits an inflammable air, or gas, and flashes at the approach of a candle. There are certain instances of human creatures who have taken fire spontaneously, and been totally consumed."

<sup>m</sup> The account which Madame Merian has given of the light of the *Fulgora Lanternaria* is so surprising, that it will certainly prove acceptable to many readers. It is indeed a digression from the account of *Fulgora Candelaria*, but will tend to prove, that insects of this genus emit a more vivid light than any of the illuminated kinds hitherto known.

"Once," says Madame Merian, "when the Indians brought me a number of these Lantern carriers, I put them into a wooden box, without being aware of their shining at night; but one night, being awakened by an unusual noise, and much frightened, I jumped out of bed, and ordered a light, not knowing whence this noise proceeded. We soon perceived that it originated in the box; we opened with some inquietude, but were still more alarmed, after opening it, and letting it fall on the ground, for a flame appeared to issue from it, which seemed to receive additional lustre, as often as another insect flew out of it. When we observed this some time, we recovered from our terror, and admired the splendour of these little animals." *Dissert. de generatione et metamorphibus Insectorum Surinamensis*.

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from Peru<sup>n</sup>. Her account has, however, been generally believed, since the missionaries<sup>o</sup> in countries which produce those insects have confirmed her account. It is admitted, that the *Chinese Fulgora* has an illuminated appearance in the night. "The foreheads of many Fulgoræ (especially those found in China) emit a lively shining light in the night time, which, according to some authors, is sufficient to read by."—*Ycats* <sup>p</sup>.

The light of the Fulgoræ is generally imagined to issue from the trunk, or elongated projection of the forehead; but Roefel offers a conjecture on the light of the Fulgora Lanternaria, which, on further investigation, may enable naturalists to determine whether the light is entirely produced by an innate property of the trunk, or receives additional splendour from some external cause. He notices a white farinaceous substance on several parts of the wings and body, as well as the trunk, which, he observes, looks like the decayed wood which shines at night. We mention this conjecture of Roefel, though the same occurred to us before we perused his observations. We have invariably found a similar white powder on other insects of this genus, but usually upon the trunk only. The remarks of Roefel were necessarily very limited, two species of the Fulgoræ only being then known. We possess twelve distinct species, and have made dissections and observations on several others; from all which we are inclined to imagine, that the white powder has a phosphoric appearance in the living insect, and increases the light, when the end of the trunk is illuminated.

One of the Fulgoræ of considerable magnitude, from the interior of India, enabled us to make many observations. The trunk is of the same form as that of the *Fulgora Candelaria*. The colour is a dark but beautiful purple: the apex scarlet, of a perfectly pellucid appearance, and still retains a reddish glare. The spots of white, sprinkled on the purple colour of the trunk, exhibit also a slight appearance of phosphoric matter. On the trunk of the Fulgora Candelaria these white spots are very conspicuous.

Though the generic name Fulgora seems to imply some effulgent property in the insects that compose the genus, it is uncertain whether all possess that property. They are indeed furnished with a trunk, but it is smaller in proportion, in several species, than in *F. Lanternaria*, *Candelaria*, *Flammea*, *Phospho-*

<sup>n</sup> *Cucujus Peruvianus*.

"That which, beside the figure of the head, is most wonderful in this insect, is the shining property of the same part, whereby it looks in the night like a lantern, so that, two or three of these fastened to a stick, or otherwise conveniently disposed of, will give sufficient light to those who travel or walk in the night." *Grew. Muscum Regalis Societatis*, p. 158.

<sup>o</sup> Le ver-luisant. Ceux que nous voyons à la campagne dans les nuits d'été ne jettent qu'une faible lueur: mais ils y en a dans les Indes modernes qui répandent un éclat très-vif. Ce sont, pour ainsi dire, des phosphores animés. "Les Indiens, dit le savant auteur de la Théologie des insectes, ne se faisoient autrefois dans leurs maisons, et dehors d'aucune autre lumière. Lorsqu'ils marchent de nuit, ils en attachent deux aux gros doigts du pied, et en portent un à la main. Ces insectes répandent une si grande clarté, que par leur moyen on peut lire, écrire, et faire dans une chambre toutes les autres choses nécessaires." *Leffer Liv. 2. c. 3. rem. 8.* Le trait rapporté par le P. DU TERTRE dans son *Histoire des Antilles*, auroit bien dû être cité il dit avoir lu son breviare à la clarté d'un de ces vers-luisans.

<sup>p</sup> *Ycats*. Institutions of Entomology.

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rea, and some others. It has not been determined whether any of the European Fulgoræ shine in the night time. The genus is very limited, including the discoveries of modern naturalists. Fabricius describes only twenty-five species; of these, seven are European, and eighteen extra-European. Two species are found in England.

### *Chrysanthemum Indicum.*—*Indian Chrysanthemum.*

This is a very lately introduced species in England. It is mentioned by Sir G. Staunton among the plants collected in the provinces of *Shan-tung* and *Kiang-nan*. Thunberg describes it as a native of Japan in the *Flora Japonica*. A variety of it is figured in the *Hortus Malabaricus*; and in the *Herbarium Amboinense* is another. We observe a great dissimilarity between the figures of this plant in different works. That figured in the *Herb. Amb.* has very small flowers, scarcely broader than our large daisy<sup>a</sup>: the leaves in clusters, some very large, and others small. In the *Hort. Malab.* the flowers are twice the size of the former, and the leaves are placed much asunder. The flowers of our specimen are considerably larger than either of these; yet not of the magnitude represented in the plate of Mr. Curtis's Botanical Magazine.

This Chrysanthemum is not peculiar to China, though it has been long cultivated in that country. It grows spontaneously in some parts of Japan; and from the name it bears in the Arabic, Persian, and other languages, is probably known in most parts of Asia.

<sup>a</sup> *Chrysanthemum Leucanthemum.*

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### CICADA SANGUINEA.

#### RED AND BLACK CHINESE FLEA-LOCUST.

##### GENERIC CHARACTER.

Rostrum bent under the breast. Antennæ setaceous. Wings four, membranaceous, declining along the sides of the body.

##### SPECIFIC CHARACTER

AND

##### SYNONYMS.

Dark brown. Abdomen sanguine red; two spots of the same colour on the thorax.

CICADA SANGUINEA alis superioribus fuscis, fronte abdomine thoracisque maculis binis sanguineis.

*De Geer Inf.* 3. 221. 18. *tab.* 33. *fig.* 17.

TETTIGONIA SANGUINOLENTA nigra ore thoracis maculis duabus abdomineque sanguineis. *Fab. Spec. Inf.*

2. 321. 19. *Ent. Syst.* 4. *p.* 25. 32.

LA CIGALE CHOINOISE a taches rouge de sang. *Stoll. Cicad. tab.* 13. *fig.* 62.

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Fabricius refers to the cabinet of Mr. Drury of London for a specimen of this rare insect. The authors who have given figures of it are De Geer, a French entomologist, and Stoll, in a work lately published on the continent, including Cimices and Cicadæ. The Cicada sanguinolenta of Linnæus being common in Europe, the similitude of names might create confusion, were we not to notice it. Our species is a Cicada of Stoll, as well as of De Geer, which latter author we have followed in the specific name. Fabricius having separated the Linnæan Cicadæ into several genera, this species will be found in his *Entomologiæ Systematica* under the name *Tettigonia sanguinolenta*.

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*Cicada sanguinea.*  
 \_\_\_\_\_ *ambigua.*  
 \_\_\_\_\_ *lanata.*

*Tettigonia splendidula.*  
*Cicada abdominalis.*  
 \_\_\_\_\_ *frontalis.*



## HEMIPTERA.

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### CICADA AMBIGUA.

#### SPECIFIC CHARACTER.

Olive colour. Wing cases clear, anterior margin testaceous.

CICADA AMBIGUA: olivacea, elytris hyalinis, marginibus anticis testaceis.

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Mr. Drury received this insect from China. It is a species of ambiguous character, but appears to us undescribed. It is not noticed among the Tettigoniæ of Fabricius, in his last systematic arrangement of insects.

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### CICADA LANATA.

#### SPECIFIC CHARACTER.

Wing cases black at the ends; spotted with blue. Front and sides of the head red. Abdomen tufted with wool or down.

CICADA LANATA: elytris apice nigris: punctis cœruleis, frontis lateribus rubris, ano lanato. *Linn. Syst.*

*Nat.* 2. 711. 42.

*Fab. Ent. Syst.* T. 4. p. 30. 16.

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One of the most beautiful species of the Indian Cicadæ. The wing cases are black, elegantly reticulated, and spotted with bright blue. At the extremity of the abdomen it has a tuft of long and very delicate hairs, intermixed with others that are rather convoluted and of a coarser texture. The whole of this insect, but particularly between the abdomen and wings, is sometimes profusely covered with a fine powder of a snowy whiteness, similar to that observed on the Cicada limbata in the imperfect state; hence we may conclude it is also one of those insects, which furnish the white wax<sup>d</sup> so highly esteemed in China.

<sup>d</sup> Vide Sir G. Staunton's *Hist. Emb. China*.

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### TETTIGONIA SPLENDIDULA.

#### SPECIFIC CHARACTER.

Wing cafes brown, highly glossed with a golden tinge. Thighs of the fore pair of legs thick; armed with teeth: colour red.

TETTIGONIA SPLENDIDULA: elytris fulco aureis, tibiis anticis incrassato dentatis rufis. *Fab. Ent. Syst.*  
*T. 4. 25. 33.*

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The insect added under this Fabrician character, is the same that author described from the cabinet of Mr. Drury, and to which he exclusively refers. We believe the specimen is unique, at least we have not seen it in any other collection; and it has not been figured in any preceding publication. In the Linnæan arrangement it must be placed in the Cicada genus.

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### CICADA ABDOMINALIS.

#### SPECIFIC CHARACTER.

Shining black, with two yellowish bands across the wing-cafes. Abdomen blood red.

CICADA ABDOMINALIS: atra nitida elytris fuscis duabus flavescens. Abdomine fanguineo.

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An undescribed species; allied both to the *Cercopis cruentata* and *Cercopis versicolor* of Fabricius, but clearly distinct from either; the thorax of the former being black; and the elytra of the latter marked at the base with two white spots: the abdomen black. The thorax of our species is black: it has no white spots on the elytra; and the abdomen is of a fanguineous red colour

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### CICADA FRONTALIS.

#### SPECIFIC CHARACTER.

Wing-cafes red. Five black spots on the head and thorax, and one in front between the eyes.

CICADA FRONTALIS: pallida occipite thoraceque punctis quinque nigris, fronte puncto nigro inter oculos, elytris fanguineis.

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We are unable to discover this species among the descriptions of Fabricius, and conclude it must be a new insect. The situation of the black spots on the thorax, and especially that on the front of the head, constitute the decisive criterion of this species.



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*Cicada Atrata.*

## HEMIPTERA.

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### CICADA ATRATA.

#### GREAT BLACK CHINESE FROG-HOPPER.

##### SPECIFIC CHARACTER.

Black; wings white, black at the base; veins yellowish brown.

TETTIGONIA ATRATA: atra alis albis basi nigris: venis testaceo. *Fab. Ent. Syst.* 4. 203. 28.

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Though the observations that Sir G. Staunton has made on the natural production of China, in his late publication, were necessarily very general, the science of insects appears to have engaged his particular attention; and on that account we must lament, that untoward events, precluded him from observing more minutely, the peculiarities of some kinds, and the economical purposes of others.

In the general histories of unknown countries, (and we can scarcely consider China in any other view) the entomologist must expect to find his favourite science neglected, or treated in a manner more likely to excite curiosity than reward enquiry. The work of this learned writer is an exception to our remark; though a few inaccuracies occur in it. We peruse the following account of an unknown species of Cicada with particular regret, because, it withholds information interesting to the naturalist, and, from its air of novelty, is likely to promote an erroneous opinion concerning that singular tribe of insects.

“The low and sometimes marshy country, through which the river <sup>a</sup> passes, is favourable to the production of insects; and many of them were troublesome, some principally by their sting; and others by their constant stinging noise. The music emitted by *a species of Cicada* was not of the vocal kind; but produced by the motion of two flaps or lamellæ which cover the abdomen or belly of the insect. It is the signal of invitation from the male of *that species* to allure the female, which latter is quite unprovided with these organs of courtship <sup>b</sup>.”

Again, when describing a town higher up the river, that author says, “The shops of Hai-tien, in addition to necessaries, abounded in toys and trifles, calculated to amuse the rich and idle of both sexes, even to cages containing insects, such as the *noisy Cicada*, and a large species of the *Gryllus* <sup>c</sup>.”

The reader may imagine from the first account, that the music of every other species of Cicada is of the

<sup>a</sup> Pei-Lo.

<sup>b</sup> Chap. 3. Vol. II. octavo.

<sup>c</sup> Chap. 4. Vol. II.

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vocal kind, or that it is peculiar to this Chinese insect to be furnished with lamellæ that cause a sound. The latter account confirms such conjecture, by alluding in a specific manner to the *noisy Cicada*, as to an insect described in a former part of the work. We must remark, that not only the males of the species mentioned by that author, are furnished with those lamellæ, but the whole of that section of the Linnæan Cicadæ which Fabricius has called *Tettigonia* <sup>d</sup>. The males of the species included in the other sections of that genus are certainly furnished with them also; though some of them are too minute to be observed without a glass. These lamellæ vary in size in different species; but the accounts we have of them from travellers in foreign countries, and naturalists both ancient and modern, prove they all emit a certain sound to allure the female. As we are unable to ascertain the Chinese species Sir George mentions, neither figure or description accompanying his account of it, we must therefore, speak generally of the whole genus, and then confine our remarks to those species we are acquainted with from China. Among these are *C. splendidula*, *sanguinea*, and *atrata*. The latter, we believe, is the largest species of the Chinese Cicadæ known in Europe.

Some species of this tribe were known to the ancients. With them it was the emblem of happiness and eternal youth <sup>e</sup>; and if we examine the legends of pagan mythology, we find they were deemed a race of creatures beloved by gods <sup>f</sup> and men. The Athenians wore golden Cicadæ in their hair, to denote their national antiquity; or that like those creatures they were the *first born* of the earth; and the poets feigned that it partook of the perfection of their deities <sup>g</sup>. Anacreon depicts in glowing colours the uninterrupted felicity of this creature: his ode to the Cicada is appropriate to our enquiry <sup>h</sup>.

<sup>d</sup> This includes all the larger species of Linnæan Cicadæ, such as *C. Orni*, *Tibicen*, *reticulata*, *hæmatodes*, *stridula*, &c. &c. for in some editions of the *Systema Naturæ* of Linnæus we find *Cicada Noctiluca*, which in later editions are the *Fulgoræ*, and also the *C. cruciata*, *mannifera*, *spumantes* and *deflexæ* included in one genus.

<sup>e</sup> Probably because it was supposed to live only a short time. The renewal of youth is illustrated by the story of the Tithonus transformed by Aurora into a Cicada.

<sup>g</sup> These pagan deities were without flesh or blood, and composed of aerial and watery humours. Such they imagined the moisture of the Cicada, and perhaps for that reason first assigned it a place among their demi-gods.

<sup>h</sup> Happy creature! what below  
Can more happy live than thou?  
Seated on thy leafy throne,  
(Summer weaves the verdant crown,)  
Sipping o'er the pearly lawn  
The fragrant nectar of the dawn;  
Little tales thou lov'st to sing,  
Tales of mirth—an insect king:  
Thine the treasures of the field,  
All thy own the seasons yield;  
Nature paints for thee the year,  
Songster to the shepherds dear:  
Innocent, of placid fame,  
What of man can boast the same?

Thine the lavished voice of praise,  
Harbinger of fruitful days;  
Darling of the tuneful nine,  
<sup>f</sup> *Phæbus* is thy fire divine;  
*Phæbus* to thy notes has giv'n  
Music from the spheres of heav'n:  
Happy most, as first of earth,  
All thy hours are peace and mirth;  
Cares nor pains to thee belong,  
Thou alone art ever young;  
Thine the pure *immortal* vein,  
Blood nor flesh thy life sustain;  
Rich in spirits—health thy feast,  
Thou'rt a demi-god at least.

GREEN'S *Transl. Ode* 43.

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In the infant state of music, men, seem to have preferred the natural sounds of some animals, to those of their uncouth instruments. We cannot otherwise account for the extravagant praise, bestowed on the noise of this little creature. It is true, authors agree that the sounds of some kinds are exceeding loud and harmonious, and in the early ages of the world these might have a powerful influence on the human mind. It is related that the *ancient Locri*, a people of Greece, were so charmed with the song of the Cicada, that they erected a statue to its honour <sup>i</sup>.

The ancients had attentively observed the manners of its life, though they indulged in many poetical fictions concerning it; and particularly, when they affirmed that it subsisted on dew. They have told us that it lives among trees <sup>k</sup>, which circumstance discounts the opinion of those moderns, who imagine the grasshoppers <sup>l</sup> were the Cicadæ of the ancients.

Neither were they ignorant that the males only were furnished with those instruments which externally appear to produce its sound, or the purpose for which that sound was emitted <sup>m</sup>; though it was reserved for more accurate naturalists to discover the complex organs by which it was caused and modulated. Aldrovandus, near two centuries ago, described the lamellæ, which he compares to the fruit of some herbs, called by modern botanists *Thlaspi* <sup>n</sup>.

Among later naturalists who have noticed the Cicadæ of foreign countries are Merian<sup>o</sup>, Margravius<sup>p</sup>, &c. Merian says, its tune resembles the sound of a lyre, which is heard at a distance; and that the Dutch in the

<sup>i</sup> Some say that once a certain player of *Locri*, contesting in the art of music with another, would have lost the victory, by the breaking of two strings of his instrument; but a *Cicada* flew to his aid, and resting on the broken instrument, sung so well, that the Locrian was declared victor. The Locrians erected a statue to the Cicada as a testimony of their gratitude. It represented the player with the insect on his instrument.

<sup>k</sup> Dr. Martyn supposed this refers to the smaller branches in hedges, rather than to the lofty trees in forests: we cannot entirely coincide with that opinion.

<sup>l</sup> *Grasshopper. Cicada*. They live almost every where in hot countries. *Lovel. Hist. Animal.* containing the summe of all authors ancient and modern, p. 274, &c. &c.

*Cicada*, a *Sauterelle*<sup>q</sup>, or, according to others, a *grasshopper*, vocamus; sed insectum longè diverfum, corpore et rotundiore et brevior, qui arbusculis insidet et sonum quadruplo majorum edit. a *grasshopper*, rectè *locustum* reddideris, *Morl ex Ray. Insectorih.*

<sup>m</sup> Xenarchus, an old Grecian play-writer, used to say jocosely that "the Cicadæ were very happy because they had silent wives." Aristotle also knew the sexual difference of them; he mentions them as a delicious food: he preferred the males when young, but more so the females before she laid her eggs.

<sup>n</sup> *Thlaspi* parvum Hieraciifolium, sive Lunarium luteum Monspel. et Leucojum luteum marinum. *Lobel. Stirpium Adversaria nova*, p. 74.—*Aldrov.*

<sup>o</sup> Merian. *Insecta Surinamensia*.

<sup>p</sup> Georgi Margravii rer. nat. Brasiliæ. *Lib. 7. p. 257.*

<sup>q</sup> *Sauterelle*, forte d'insecte. A locust or grasshopper. *Beyer*.—*Cigale*, a flying insect. The Cicada of the ancients, unknown in England. *Beyer*.

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plantations of Surinam (where they are very plenty) call it the Lyre-player <sup>¶</sup>. Margravius, in his natural history of Brasil, compares it to the sound of a vibrating wire: he says the tune begins with *Gir, guir*, and continues with *Sis, fis, fis*. One species is called Kakkerlak <sup>†</sup> in the Indies, perhaps because the sound emitted by it may be likened to the pronunciation of that word. Mr. Abbot, an accurate observer and collector of natural history in *North America*, has discovered four new species of Cicada, one of them nearly equal in size to our Cicada Atrata. This, he says, was found in great abundance one season, in some swampy grounds near Susquehanna river, and was remarkable on account of their loud noise, which at a little distance resembled the ringing of *horse-bells* <sup>‡</sup>.

Some naturalists have supposed that the sound of the Cicada, is caused by the flapping of the lamellæ against the abdomen; and others, that it is only a noise occasioned by the rustling of the segments of the body in the contractile motion of that part. Beckman <sup>†</sup> imagines it is caused by beating the body and legs against the wings: he has endeavoured to explain the meaning of ancient authors, and deduce its etymology from that circumstance <sup>§</sup>.

Reaumur and Roefel have dissected several of the Cicadæ, and discovered that the lamellæ cannot have that free motion necessary to cause such a sound; but that it is produced by some internal organs of the insect, and only issues through the opening, concealed under the lamellæ, as through the mouth of a musical instrument <sup>¶</sup>.

The suppositions of these authors seem well founded; we have examined many species that were unknown to them, and find the spine before mentioned, so placed in many insects, as to prevent the motion

¶ De Lierman.      † *Scopoli carn.* Yeats describes the Kakkerlak of the American islands as a species of *Blatta*, cock-roaches. Are there not two insects of that name?—one of them is, we believe, a *Blatta*.

‡ Communicated by Mr. Abbot in North America to Mr. Francillon in London.

† *Roef. Insecten Bellustigung*.—CHRISTIANI BECKMANNI, Bornensis, manu ductionem ad latinam linguam: nec non de originibus latinæ linguæ, &c.

§ It is the common opinion that the word *Cicada* has its origin from *quod cito cadat*, which, after a general interpretation, implies that the Cicadæ soon vanish, or are short-lived. Beckman maintains that this opinion is absurd, and proves that its name is derived from ringing, because *κικειν* signifies a sound produced by the motion of a little skin; and that *ciccum* or *cicum* is a thin little skin of a pomegranate, that parts the kernels.—Beckman not knowing the insect, or not imagining that the *little skin* was an appendage to the abdomen, concluded it must mean the transparent wings, and consequently that the sound was produced by beating them against the body: but this interpretation, if applied to the lamellæ instead of the wings, will directly prove the origin of its name, and knowledge of the ancients.

¶ For the satisfaction of the curious reader, we detail the most interesting particulars concerning the organization of these parts from Reaumur's *Histoire des Insectes*, and Roefel's *Verschiedene ausländische sorten von Cicaden*, &c.

The music of the Cicada is not caused by the motion of the lamellæ, as some have supposed. Reaumur observes, that although the lamellæ have a kind of moveable hinge, they have also a stiff and pointed tooth, or spine, that prevents them from being lifted far back; and, if strained, are very liable to be broken.

From the anatomical description of Roefel, we find that, within the two hollows that are seen when the lamellæ are lifted up, two very smooth skins are visible; these are highly polished, of nearly a semicircular shape, and reflect prismatic colours: there is between these

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of the lamellæ. We have a specimen from America, which, in addition to the usual organs of sound, have two large hollow protuberances or drums; one on each side of the abdomen; and must, we imagine, produce a louder sound than any yet discovered: a species very similar to this is also brought from New Holland.

The proboscis of those insects is a hard or horny tube, in which a very acute, slender sucking-pipe is concealed. The horny tube is not unlike a gimlet in form, and is used by those creatures to bore through the bark of trees, to extract the juices, on which it feeds. Linnæus has named the species of one division in his System, *Mannifera*, because they had been observed to fly among ash trees, bore many holes in them, and when the manna had oozed out, return and carry it off.

With this proboscis they bore holes in the small twigs of the extreme branches of trees, and deposit their eggs in them, sometimes to the amount of six or seven hundred. As each cell contains no more than from twelve to twenty eggs, it does great damage to the trees they frequent. Stohl says, "the common one", which is found at Surinam in the coffee plantations, greatly injures those trees; the females depositing their eggs in the young shoots, and in holes they bore with their sheath. They live on the juices of the trees."

a hard brown projection, or corner which unites with another piece above them in a longitudinal direction, to the under part of the breast. This longitudinal piece divides a triangular red space or field into two parts, one on the right side, and the other on the left. Above these, in a transverse direction, is seen two small yellow skins; the lamellæ in their natural position conceal these organs because they fold exactly over them.

Reaumur, in the exterior appearance of these parts, could discover nothing that could lead to determine the organs of the sound; and he was not satisfied that the slight motion of the lamellæ on these parts could produce the loud singing noise of the Cicada. He opened a few cicadæ on the back part of the body, so that the inner structure of the under side was displayed, and especially the parts connected to the curious organs he had discovered under the lamellæ. At last he discovered two large muscles, which at their point of union formed a space almost square, and were connected with the red triangular fields he had observed on the under side: as he concluded these formed a material part of the organs he wished to discover, he examined them attentively, and found that, by moving them backwards and forwards, he could make a cicada sing that had been dead many months. Although the sound was not strong, it tended to prove that he had discovered the instrument that produced it.—In another part he says it is evident the sound is caused by the little skins connected to the muscles, because when they were rubbed with a bit of paper they emitted that kind of sound.

Roefel has discovered two little pieces of horny substance that are connected by a sort of fibre within the skins, in the body, and he supposes when this is in motion, it strikes against the before-mentioned thin skins, and produces a sound, by the same means as a hollow body, or drum, when struck with a stick: and also that this noise may be varied or modulated by a slight motion of the lamellæ, but cannot be produced without the assistance of the internal nerves and muscles connected with the organs first described.

Authors agree that the Cicadæ of hot countries emit the loudest sound. It appears from the papers of Mr. Smeethman (who resided a considerable time in Africa) published by Mr. Drury, that the sound of some kinds peculiar to that part of the world is so loud as to be heard at half a mile distance; and that the singing of one within doors, silences a whole company.—The same attentive observer says, the open parts of the country are never without their music, some singing in the evening and others only in the day.

γ La Cigale Vieilleuse. Cicad. Tibicien.

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M. Merian gives a figure and account of the metamorphose of a cicada found in Surinam. She has mistaken the winged insect to be only the pupa of the *Fulgora Lanternaria*, which is too absurd to deserve contradiction; in other respects her account is interesting, and particularly that part which relates to the pupa state, or chafer, as it is termed. "The pomegranate tree," says Merian, "so well known in all other countries, grows also in the fields of Surinam. On them I have found a species of chafer, which is naturally very lazy, and consequently very easy to be caught. It carries underneath the head a long trunk, with which it easily penetrates the flowers, in order to extract the honey from them. On the 20th of May, when they were laying quite quiet, the skin of the back burst open, and green flies, with transparent wings, issued from them. These flies are found in abundance in Surinam, and have such a rapid flight, that it took me many hours to catch one."

The pupa we received from China with our *Cicada atrata*, very much resembles that figured by Merian. It has the long sucking trunk or proboscis; but the most formidable of its weapons seem to be the fore feet, which are thick, strong, and armed with spines or teeth; with these it may do more injury to the plants, by tearing off the tender shoots, than by wounding the trunk to extract the moisture.

We have represented the upper and under side of a male of this interesting species, *Cicada atrata*, not only to illustrate our preceding remarks, but because we believe no figure has been given of it by any author, unless *De Zwarte Chinesche cicade*<sup>2</sup> of Stohl is intended for this insect. The Fabrician description has no synonyms.

The general appearance of both sexes of *Cicada atrata* is very similar, except that the female is furnished with a sheath, and the male with lamellæ. The sheath of the female is partly concealed within a valve at the extremity of the abdomen, and is only protruded when the creature lays her eggs. In the figure of the under surface of a male insect, exhibited in the annexed plate, the lamellæ are distinguished by two stars: the single star denotes the situation of the spine, mentioned by Roefel and Reaumur.

### *Laurus Camphora*.—Camphor-tree.

The tree which produces the useful drug *camphor* is very abundant in Japan and China. Sir G. Staunton says it is the only species of the laurel genus growing in China, where it is a large and valuable timber, and is never cut up for the sake of the drug; but that substance is obtained by decocting the small branches, twigs, and leaves, and subliming the camphor in luted earthen vessels. A purer sort is brought from the island of Borneo and Japan, which is supposed to be a natural exudation from the tree when the bark is wounded. Sir G. Staunton says the Camphor-tree is felled in those countries for the sole purpose of finding the drug in substance among the splinters.

<sup>2</sup> La Cigale Chinoise noire, pres de Canton en Chine. Cab. de Monf. *L. F. Holthufen*, pl. 20. fig. 118.



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*Cicada Limbata.*

London. Published as the Act directs by E. Donovan May 17, 1798.

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### CICADA LIMBATA. *var.*

#### WHITE-WAX INSECT.

##### GENERIC CHARACTER.

Rostrum bent under the breast. Antennæ setaceous. Wings four, membranaceous, declining along the sides of the body.

##### SPECIFIC CHARACTER.

Wing cases deflexed, green, margin red. Interior case spotted with black.—*Var.* whitish, margined with black: a row of black spots on the posterior edge.

CICADA LIMBATA: elytris deflexis viridibus, margine rubro, interiori basi nigro punctato.

*Fab. Spe. Inf.* 2. p. 322. 3.

CICADA LIMBATA *var.* Aliam simillimam vidi, at totam ex albidam futura basi nigro punctata margineque elytrorum postico nigro. *Fab. Spe. Inf. ibid.*

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This singular insect, and the plant on which it is represented, have an equal claim to attention, both as objects of natural curiosity, and importance in domestic economy. The Larva is an elegant and beautiful creature, and China is indebted to its labours for the fine white wax so much esteemed in the East Indies. The plant is not less interesting, as it produces the vegetable tallow, in general use throughout the Chinese empire.

The novelty of these productions could not fail attracting the notice of those learned Europeans who were first permitted to reside in China, and whose object was to promote sciences and arts, as well as the christian knowledge. Both the Wax-insect, and Tallow-tree, are spoken of in their writings, as extraordinary and peculiar advantages to the country. Du Halde, especially in his splendid work *L'HISTOIRE DE*

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LA CHINE, treats largely on these productions, in the sections *Cire blanche d'Insectes*<sup>f</sup> & *l'arbre qui porte le suif*. His relations are, perhaps, too prolix, but they are evidently the result of attentive observation, and serve to illustrate the Natural History, and economical purposes, of the subjects we are noticing: they are briefly these. The white wax of China is called *Tchang pe la*; it is not the same as the white wax of bees, but is the produce of a sort of insect that feeds on a tree called *Tong tchin*: these insects form a kind of white grease which attaches to the branches of the tree, hardens, and becomes wax. It is scraped from the branches of the trees in autumn, melted on the fire, strained; then poured into cold water, where it coagulates and forms itself into cakes. This wax is very white and glossy; it is mixed with oil and made into candles, and is much superior to the wax of bees for that purpose.

### <sup>f</sup> *De la Cire Blanche,*

*Faite par des insectes, et nommée Tchang pe la, c'est-à-dire, Cire blanche d'insectes.*

Ki dit. La Cire blanche dont il s'agit ici, n'est pas la même que la cire blanche des Abeilles. Ce sont de petits insectes qui la forment. Ces insectes succent le suc de l'espèce d'arbres nommée *Tong tchin*, et à la longue ils le changent en une sorte de graisse blanche, qu'ils attachent aux branches de l'arbre.

Il y en a qui disent que c'est la fiente de ces insectes, qui s'attachant à l'arbre, forme cette Cire, mais ils se trompent. On la tire en raclant les branches dans la saison de l'Automne; on la fait fondre sur le feu, et l'ayant passée, on la verse dans l'eau froide où elle se fige, et se forme en pains. Quand on l'a rompue, on voit dans les morceaux brisés, des veines comme dans la pierre blanche ou congélation nommée *Pe che cao*; elle est polie et brillante: on la mêle avec de l'huile, et on en fait des chandelles. Elle est beaucoup supérieure à celles que font les Abeilles.

*Chi tchin* dit. Ce n'est que sous la Dynastie des *Yuen* qu'on a commencé à connaître la cire formée par ces insectes. L'usage en est devenu fort commun, soit dans la médecine, soit pour faire des bougies. Il s'en trouve dans les Provinces de *Se tchuen*, de *Hou quang*, de *Yunnan*, de *Fo kien*, de *Tche kiang*, de *Kiang nan*, et généralement dans tous les quartiers du Sud-Est. Celle qu'on ramasse dans les Provinces de *Se tchuen* et d'*Yunnan*, et dans les territoires de *Hen tcheou*, et de *Yung tcheou* est la meilleure.

L'arbre qui porte cette cire, a les branches, et les feuilles semblables à celles du *Tong chin*. Il conserve sa verdure durant toutes les saisons: Il pousse des fleurs-blanches en bouquets durant la cinquième Lune; il porte des fruits en bayes, gros comme le fruit du *Kin rampant*.

Quand ils ne sont pas mûrs, ils sont de couleur verte; et ils deviennent noirâtres, lorsqu'ils mûrissent, au lieu que le fruit de *Tong chin* est rouge. Les insectes que s'y attachent sont fort petits. Quand le soleil parcourt les quinze derniers degrés des Gemeaux, ils se répandent en grimant sur les branches de l'arbre; ils en tirent le suc, et jettent par la bouche une certaine bave, qui s'attachant aux branches encore tendres, se changent en une graisse blanche, laquelle se durcit, et prend la forme de cire. On diroit que c'est de la gelée blanche que le froid a durcie.

Quand le soleil parcourt les quinze premiers degrés du Signe de la Vierge, on fait la récolte de la Cire, en l'enlevant de dessus les branches. Si l'on diffère à la cueillir que le Soleil ait entièrement parcouru ce Signe, il est difficile de la détacher, même en la raclant.

Ces insectes sont blancs quand ils sont jeunes, et c'est alors qu'ils font leur cire. Quand ils deviennent vieux, ils sont d'un châtain qui tire sur le noir, C'est alors que formant de petit pelotons, ils s'attachent aux branches de l'arbre. Ces pelotons sont au commencement de la grosseur d'un grain de mil: vers l'entrée du printemps ils commencent à grossir et à s'étendre. Ils sont attachés aux branches de l'arbre en forme de grappes, et à les voir, on diroit que l'arbre est chargé de fruits. Quand ils

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*Chi tchin*, a Chinese writer, says, it was not till the dynasty of *Yuen* that the wax made by these insects began to be known; the custom then became very general to employ it both in medicine and making candles. Its medicinal virtues are highly extolled by the Chinese physicians, and particularly by *Tchi hen*. It is said to be a drug absolutely necessary to surgeons, that it makes the flesh close, stops bleeding, appeases pain, unites the nerves, rejoins the bones, and taken in pills, kills the worms that occasion consumptions. It is found in most of the south-east provinces of China; but the best is brought from *Se tchuen* and *Yunnan*, and from the territories of *Hen tcheou*, and *Yung tcheou*.

These insects are white when young, and it is then they make their wax. When old, they are of a blackish chestnut colour, and form little pelotons on the branches of trees. These pelotons, at first, are about the size of a grain of millet; towards the beginning of the spring they increase in bulk and spread; they are attached to the branches like grapes, and at first sight, the trees that bear them, appear loaded with fruit. About the beginning of May, they gather them, and having enveloped them in the leaves of *Yo* (a species of broad-leaved grass), they are suspended to the trees. At the end of June, and in July, the pelotons open, and the insects come forth, crawl about the leaves, and form their wax.

Sir G. Staunton, in his learned work, has also described the Wax insect; he found it at Turon Bay, in Cochin China, and has caused it to be represented in a vignette plate, with the following description. "Among other objects of natural curiosity, accident led to the observation of some swarms of uncommon

font sur le point de mettre bas leurs œufs, ils font leur nid de même que les chenilles. Chacun de ce nids ou pelotons contient plusieurs centaines de petits œufs blancs.

Dans le tems que le soleil parcourt la seconde moitié du Taureau on les cueille, et les ayant enveloppez dans des feuilles de *Ya* (espece de fimple à larges feuilles;) on les suspend à différens arbres. Après que le Soleil est sorti du Signe de Gemaux, ces pelotons s'ouvrent, et les œufs produisent des insectes, qui sortant les uns après les autres des feuilles dont ils sont enveloppez, montent sur l'arbre où ils font ensuite leur cire.

On doit avoir soin d'entretenir le dessous de l'arbre toujours propre, et de le garentir des fourmis qui mangent ces insectes. On voit deux autres arbres auxquels on peut attacher les insectes, et qui porteront également de la cire; l'un qui se nomme *Tien tchu*, et l'autre qui est un espece d'arbre aquatique, dont les feuilles ressemblent assez à celles du Tilleul.

### *Qualitez et effets de cette cire.*

Elle est d'une nature qui n'est ni froide ni chaude, et qui n'a aucune qualité nuisible. Elle fait croître les chairs, elle arrête le sang, elle appaise les douleurs, elle retablit les forces, elle unit les nerfs, et rejoint les os, prise en poudre dont on forme des pillules, elle fait mourir les vers qui causent la phtisie.

*Tchi hen* dit. La Cire blanche est sous la denomination du métal: ses esprits corroborent, fortifient, et sont propres à ramasser et a resserrer. C'est une drogue absolument nécessaire aux chirurgiens: elle a des effets admirables, quand on la fait entrer avec de la peau de *Ho hong* dans la composition de l'onguent, qui fait renaitre et croître les chairs. *Du Halde, Vol. IV. p. 495.* *Large Folio, 1735.*

## HEMIPTERA.

insects busily employed upon small branches of a shrub, then neither in fruit or flower, but in its general habit bearing somewhat the appearance of a privet. These insects, each not much exceeding the size of the domestic fly, were of a curious structure, having pectinated appendages rising in a curve, bending towards the head, not unlike the form of the tail feathers of the common fowl, but in the opposite direction. Every part of the insect was, in colour, of a perfect white, or at least completely covered with a white powder. The particular stem frequented by those insects, was entirely whitened by a substance or powder of that colour, strewed upon it by them. The substance or powder was supposed to form the white wax of the East. This substance is asserted, on the spot, to have the property, by a particular manipulation, of giving in certain proportions, with vegetable oil, such solidity to the composition as to render the whole equally capable of being moulded into candles. The fact is ascertained, indeed, in some degree, by the simple experiment of dissolving one part of this wax in three parts of olive oil made hot. The whole, when cold, will coagulate into a mass, approaching to the firmness of bees wax."

From the accurate description and figures of the latter author, it is evident, the creature that produces the white wax of China, is an imperfect insect, or, technically speaking, the pupa of an insect, which, in its mature state, is furnished with wings. This is clearly the fact, for the rudiments of wings are visible in the figures alluded to<sup>§</sup>. The metamorphose of insects are so various, and their appearance so changed in passing from one state to another, that the identity of any species in the larva or pupa can only be proved by actual observation; neither do the larva or pupa possess those characteristic differences by which naturalists determine one species from another; and this consideration deters us from deciding on the precise species, to which the pupa before us should be referred.

STOHL, a Dutch author, has been more fortunate; he has ascertained this identical creature to be the pupa of *Cicada Limbata*, and in his work on *Cimices* and *Cicades*, gives a figure of it under the title of *De Walдраagster* (Nymphé) or *La Cigale Porte Laine*, fig. 144, together with the winged insect at fig. 145; and it is on this authority *Cicada Limbata* is introduced in the annexed plate.

We are strongly inclined to credit the accuracy of Stohl in this instance; there is much similarity between the pupa and the cicada, and some striking characteristics are common to both. They agree in the structure of the antennæ, and proboscis, or sucking trunk; the abdomen of the winged insect is also loaded with a fine white powder, and is furnished at the extremity with a tuft of down and hairs, similar to that so eminently conspicuous in the pupa state. We have, however, observed the white powder, and tuft on the abdomen of *Cicada lanata*, and have reason to imagine it also forms a white wax, similar to that of the present species.

<sup>§</sup> This may account for a passage in *Gordon's* description of China, where he says, "In the plains" of Houquang "are vast numbers of little *worms* that produce wax, in the same manner as bees do honey," if we understand by *worms*, insects not arrived at maturity; for the larva of *Bombyx Mori*, is also termed a silk worm, though it belongs to the moth tribe when perfect.

## HEMIPTERA.

The Cicada limbata is of a light green colour, with a red margin; that which Stohl has figured is of a pale brown, with a black margin. These are the *species* and *variety* Fabricius describes, for the specimens he refers to, in the collection of Sir Joseph Banks, agree precisely with our insects. Fabricius notes the *habitat* Africa. Stohl received the green specimen from the Island of Ceylon; the pale sort from Africa. The larva we have represented is from China; and the Cicada was brought from the East Indies, by the late Mr. Ellis.

### *Croton Sebiferum*—Poplar-leaved Croton, or Tallow-tree.

The Tallow-tree is not the natural food of the Wax insect, but as they mutually illustrate the same inquiry, they are represented in the same plate; and it is further presumed, that a short account of this useful plant, will be deemed a proper sequel to the history of the insect.

Du Halde, when describing the Tallow-tree, says, “ Il est de la hauteur d’une grande cerifier. Le fruit est renfermée dans un écorce qu’on appelle *Yen Kiou*, et qui s’ouvre par le milieu quand il est mûr, comme celle de la châtaigne. Il consiste en des grains blancs de la grosseur d’un noisette, dont la chair a les qualitez du suif; aussi en fait-on des chandelles, après l’avoir fait fondre, en y mêlant souvent un peu d’huile ordinaire, et trempant les chandelles dans la cire qui vient sur l’arbre dont je vais parler: il s’en forme autour du suif une espèce de croûte qui l’empêche de couler<sup>b</sup>. Page 18. Vol. I.

Sir G. Staunton speaks nearly to the same effect: “ From the fruit of the *Croton sebiferum*, of Linnæus, the Chinese obtain a kind of vegetable fat, with which they make a great proportion of their candles. This fruit, in its external appearance, bears some resemblance to the berries of the ivy. As soon as it is ripe, the capsule opens and divides into two, or, more frequently, three divisions, and falling off, discovers as many kernels, each attached by a separate foot-stalk, and covered with a fleshy substance of a snowy whiteness, contrasting beautifully with the leaves of the tree, which, at this season, are of a tint between a purple and a scarlet. The fat, or fleshy substance, is separated from the kernels by crushing and boiling them in water. The candles made of this fat are firmer than those of tallow, as well as free

<sup>b</sup> “ It is of the height of a large cherry-tree; the fruit is inclosed in a shell, called *Yen Kiou*, which, when ripe, opens in the middle like the chestnut. The fruit consists of white kernels of the size of a small, or hazel nut, whose substance has all the qualities of tallow; so that they make candles of it, after having melted and mixed it with a small portion of common oil, and then dipping the candles into the wax before mentioned, it forms a kind of crust round the tallow that prevents its running, or wasting.

## HEMIPTERA.

from all offensive odour. They are not, however, equal to those of wax or spermaceti." This author further adds, "The wax for candles, is generally the produce of insects, feeding chiefly on the privet, as is mentioned in the chapter of Cochin China. It is naturally white, and so pure as to produce no smoke; but is collected in such small quantities, as to be scarce and dear. Cheap candles are also made of tallow, and even of grease of too little consistence to be used, without the contrivance of being coated with the firmer substance of the tallow tree or of wax." *Vide Chapter on Sou-choo foo.*

The tallow-tree is now cultivated in the West Indies, where it thrives well, and produces fruit, and by proper attention may hereafter become useful.



HEMIPTERA.



*Nepa Grandis.*

# HEMIPTERA.

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## NEPA GRANDIS. GREAT WATER SCORPION.

### GENERIC CHARACTER.

Rostrum bent inwards. Antennæ formed like legs.

### SPECIFIC CHARACTER

AND

### SYNONYMS.

Brown. Thorax, scutellum, and elytra, varied with obscure yellow marks.

NEPA GRANDIS testacea, scutello lævi, alis albis maculis venisque flavis. *Linn. Syst. Nat.* 2. 713. 1.

Nepa Grandis, fusca flavo maculata. *Fab. Ent. Syst.* T. 4. p. 61.

*Merian Surin.* tab. 56.

Die große Surinamische, breitleibige Wasserwanze. *Roef. Inf.* 3. tab. 26.

Le Grand Scorpion-aquatique. *Stoll. Cimic.* 2. tab. 7. fig. 4.

*De Geer Inf.* 3. 379.

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M. Merian has given a plate and description of this species in her work on the Insects of Surinam. We learn from that account, that in the larva and pupa state it lives in the water; that it is a voracious creature, and feeds not only on the weaker kinds of aquatic insects, but on some animals much larger than itself. The pupa <sup>†</sup> is represented on the back of a large frog in the water, and is designed to portray the manner in which it fastens on those creatures, holds them between its strong curved fore feet <sup>‡</sup>, and extracts the juices of their bodies, through its singularly constructed beak. M. Merian says the winged insect came out of one of these creatures on the twelfth of May 1701.

Every writer on this insect since M. Merian, appears indebted to her, for their account of these few particulars; for though all the European species of the same genus undergo precisely the same changes in their aquatic dwellings, among decayed vegetables, &c. at the bottom of the water, and quit it only in the

<sup>†</sup> These are *femio-completa*: unlike the pupa of the Lepidoptera, &c. these scarcely differ in appearance or manners of life from the complete insect, but have only the rudiments of the wings.

<sup>‡</sup> If these correspond with the antennæ of other insects, the Nepa has only four feet.

## HEMIPTERA.

winged state <sup>v</sup>, we are indebted to her for the time of the appearance of this exotic species in that state, as well as for a correct figure of its pupa.

Authors vary in their accounts of its native country. Linnæus, following Merian, makes it *Surinam*; Margravius, *Brasil*; and Fabricius, *America* generally. We observe a slight difference between our Chinese specimen and the figures in preceding works referred to by Fabricius; but in giving it as the *Nepa Grandis* of that author, we have no hesitation, having compared it with those species referred to by Fabricius in the collection of the Right Hon. Sir Joseph Banks, Bart.

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### NEPA RUSTICA. EGG-CARRYING WATER SCORPION.

#### SPECIFIC CHARACTER

AND

#### SYNONYMS.

Without tail, brown. Margin of the thorax, and anterior edge of the wing cases, pale.

NEPA RUSTICA: ecaudata fusca thoracis elytrorumque margine antico albido. *Fab. Ent. Syst. T. 4. 62. 3.*  
Nepa Plana. *Sulz. Hist. Inf. tab. 7. fig 2.*

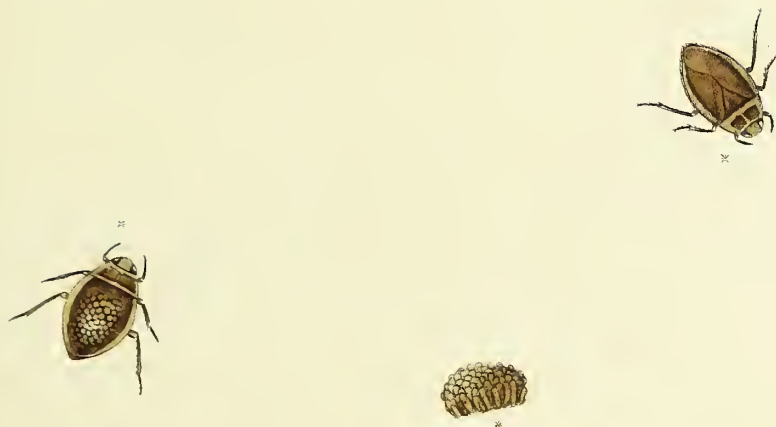
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Insects in general discover an extraordinary degree of care, and ingenuity, in depositing their eggs in the most secure situations, or places where the infant brood, when hatched, may be provided with proper sustenance. Those of the aquatic kind usually lay them in recesses in the mud or sand, or under loose stones that lie at the bottom of the water: others, with as much care, and more ingenuity, hollow out the interior substance of the large stalks of water plants, and deposit their eggs in them; or, rising out of the water, lay them in the extreme branches of those plants, to secure them from other aquatic depredators. The *Nepa rustica* displays even more sagacity, or attachment for its eggs, than those creatures; for it never leaves them. Till they are hatched, it bears them on its back, in a cluster of an oval shape; these eggs are of an oblong form, and are fastened by the narrowest end to a thin film, or plate of cement, that causes them to adhere to the polished surface of the wing cases; when these eggs, about an hundred in number, are hatched, it casts off the exuviae of the cluster, and differs no longer in general appearance from the male of the same species.

Our figures represent the situation of the eggs on the back, and the insect also after they are cast off. It is not commonly received with the eggs upon it. Found on the coast of Coromandel, as well as China.

<sup>v</sup> *Nepa Cinerea* and *Linearis* are English species; these live in the water till they have wings, when they occasionally quit it to pursue other winged creatures.—CHINA produces a species which differs very little except in size from *N. Cinerea*. *Fabricius* calls it *NEPA RUBRA* in his *Ent. Syst. T. 4. g. 62. sp. 6.* We deem a farther description of it unnecessary.

# HEMIPTERA.



\* *Zepha rustica.*

\* *Zepha rubra.*





HEMIPTERA.



\* *Cimex* *Dejar.*

† *Cimex* *Stonbuschii.*

## HEMIPTERA.

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### CIMEX DISPAR. OCELLATED BUG.

#### GENERIC CHARACTER.

Beak bent downwards. Antennæ longer than the thorax. Wings folded across each other: the upper ones coriaceous from the base to the middle. Back flat. Thorax margined. Feet formed for running.

#### SPECIFIC CHARACTER

AND

#### SYNONYMS.

Escutcheon extends over the wings and abdomen. Thorax and escutcheon deep orange with spots of yellow, and a small black point in the middle of each.

CIMEX DISPAR: scutellaris carneus thorace scutelloque maculis flavescentibus: quibusdam puncto ocellari atro. *Fab. Spec. Inf. 4. p. 81. 7.*

CIMEX OCELLATUS. *Thunb. Nov. Spe. tab. fig. 72.*

De Ongelyke Schildwantz. La punaise dispar. *Stoll. Cimic. tab. 37. fig. 260.*

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This curious insect is among the number of those lately brought from China. A figure of the upper surface is represented on a leaf of the *Camellia Sefanqua*, one of the vignette plates of Sir G. Staunton's History of the late Embassy to that country; a coloured figure and a short account of it may therefore prove acceptable to the readers of his volumes.

Professor Thunberg of Upsal discovered this insect in his travels in Japan, and described it among his *new species* under the name *Cimex Ocellatus*. Stoll, in a work recently published on Cimices, has also given a figure of it: he has likewise represented another sort, which he considers as the female (*letter A*); it has no black points in the yellow spots of the thorax and scutellum: he mentions the Isle of Formosa as the native country of his specimens.

Fabricius has rejected the specific name *Ocellatus*, which was given by Thunberg, and has called it *Dispar*: he has added a very minute account of its characteristic marks, &c.

We have represented the insect in a flying position, to display the singular wings, that are concealed under the scutellum when it is at rest. The other figure, distinguished also by a star, exhibits the under side of the insect, which for variety and beauty of colours is not less interesting than the upper surface.

## HEMIPTERA.

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### CIMEX STOCKERUS.

#### BLUE BUG OF STOCKER.

#### GENERIC CHARACTER.

Beak bent downwards. Antennæ longer than the thorax. Wings folded across each other: the upper ones coriaceous from the base to the middle. Back flat. Thorax margined. Feet formed for running.

#### SPECIFIC CHARACTER

#### AND

#### SYNONYMS.

Oval: green with black spots: body ferrugineous.

CIMEX STOCKERUS: ovatus corpore viridi: maculis nigris, abdomine ferrugineo. *Lin. Syst. Nat.* 2. 715. 2.

*Fab. Ent. Syst. T.* 4. 79. 212. 1.

LA PUNAISE BLEU DE STOCKER. *Stoll. Cimic. fig.* 15. p. 2.

*Petiv. Gazoph.* 34. tab. 21. fig. 12.

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This beautiful insect is not peculiar to China; it is found on the coasts of Bengal and Coromandel, and in the Isle of Java. It seems a very common creature in those parts of the world; for we rarely receive a parcel of the insects of those countries, and from China in particular, that does not include many of them. There are several varieties of this species; some incline very much to green, and vary in the form of their spots, &c. We have a charming miniature variety of it from *Africa æquin.* about one third of the size of the Chinese specimens, and of a very deep blue colour. The marks both on the upper and under side precisely resemble those in the annexed figures.

# HEMIPTERA.



*Cimex* *Stockerus*.

— *cruciger*.

*Procuria*.

*Cimex* *aurantius*.

— *Phasianus*.

*hyldus*.



## HEMIPTERA.

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### CIMEX AURANTIUS.

#### SPECIFIC CHARACTER.

Orange. Head, anterior margin of the thorax, and feet, black. Margin of the abdomen marked with black spots.

CIMEX AURANTIUS: aurantius capite thoracis margine antico abdominis maculis marginalibus pedibusque atris. *Fab. Ent. Syst. T. 4. p. 105. 99.*

*Sulz. Inf. Tab. 10. Fig. 10.*

La Punaife couleur d'orange. *Stoll. Cimic. 2. Tab. 6. Fig. 39.*

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This elegant insect has been figured by Stoll and Sulzer. The four following are not, we believe, in any other work.

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### CIMEX CRUCIGER.

#### SPECIFIC CHARACTER.

Oblong: black. Thorax spined, and marked with four longitudinal ferruginous lines. Wing cases black, with a ferruginous cross.

LYGÆUS CRUCIGER: thorace acute spinoso oblongus supra niger, thorace lineis elytris cruce ferrugineis.

*Fab. Ent. Syst. 4. p. 140. 22.*

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From the collection of Mr. Francillon, who received it from China. Fabricius describes it in his new genus *Lygæus* as a native of Brazil.

## HEMIPTERA.

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### CIMEX PHASIANUS.

#### SPECIFIC CHARACTER.

Brown. Posterior thighs arched, thick, armed with a spine. Under side of the abdomen gibbous at the base.

LYGÆUS PHASIANUS: fuscus femoribus posticis arcuato clavatis unidentatis abdominis basi subtus gibbo.

*Fab. Ent. Syst. T. 4. p. 144. 35.*

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This species is allied to *Cimex bellicosus*, a native of Africa. Fabricius notes *Lygæus Phasianus* from Africa also: our specimens were brought from China by the late Mr. Ellis, surgeon.

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### CIMEX SLANBUSCHII.

#### SPECIFIC CHARACTER.

Red. Thorax marked with a black band. Scutellum black; and a spot of the same in the middle of the wing-case.

LYGÆUS SLANBUSCHII: sanguineus thorace fascia abbreviata, scutello elytris puncto alisque atris.

*Ent. Syst. T. 4. p. 155. 68.*

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Fabricius describes this insect from the cabinet of Schlanbusch. It is very common in China.

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### CIMEX BIFIDUS.

#### SPECIFIC CHARACTER.

Black. A rufous bar across the wing-cases. Scutellum furnished with an erect spine, which is two-cleft or bifid at the apex.

REDUVIUS BIFIDUS: ater elytris fascia rufa, scutello spina erecta apice bifida.

*Fab. Ent. Syst. T. 4. p. 204. 40.*

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This very singular creature is a *Cimex* of Linnæus. It is a rare species, and has only been described by Fabricius, who places it in the new genus *Reduvius*<sup>a</sup>.

<sup>a</sup> Linnæus comprehends under the general title *Cimex*, a variety of insects, very opposite in appearance, though not essentially different; and to avoid confusion in the arrangement of these dissimilar species in the same genus, he separates them into eleven distinct families, under the names of *Apteri*, *Scutellati*, *coleoptrati*, &c. Fabricius, throughout all his works, endeavours to divide the Linnæan Cimices, and finally, in the *Entomologia Systematica*, he refers them to the following genera, *Acanthia*, *Cimex*, *Coreus*, *Lygæus*, *Miris*, *Gerris*, and *Reduvius*.



LEPIDOPTERA.



*Papilio Crino.*



LEPIDOPTERA.



*Papilio Paris.*

## LEPIDOPTERA.

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### PAPILIO PARIS.

#### GENERIC CHARACTER.

Antennæ increase in bulk towards the extremity, and usually terminate in a kind of club.

Wings erect, when at rest. Fly in day time.

#### SPECIFIC CHARACTER.

Posterior wings tailed, black with a large blue spot, and a purple eye near the anterior margin. Seven lunar marks on the under side.

PAPILIO PARIS: alis caudatis nigris: posticis macula cyanea ocelloque purpureo, subtus lunulis septem.

*Linn. Syst. Nat.* 2. 745. 3.

*Fab. Ent. Syst. T.* 3. p. 1. 1.

*Cram. Inf.* 9. tab. 103. A. B.

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The simile proposed by Linnæus for the arrangement of Butterflies, is gleaned from ancient and fabulous history. The species are divided into sections of Trojan and Greek princes, heroes, deities, nymphs, and plebeians: this allegorical system, which is well conducted, seems liable to less objection, than the characters assigned to each section: for many species placed among the Equites, and a more considerable number with the Plebeii, are inconsistent with the essential criterion Linnæus has given. This arrangement has undergone some material alterations in the *Entomologia Systematica* of Fabricius; alterations, perhaps justified, by the comprehensive view, its author has taken of this pleasing branch of Entomology. The Equites, with many additions, and a few exceptions, are the same as those in the two Linnæan sections: Papilio Priamus, is however, removed from the head of the *Equites Trojani*, and the precedence given to Papilio Paris.

Papilio Paris is an insect of considerable beauty. The general colour on the upper surface obscure brown, nearly approaching black, but finely contrasted with brilliant green atoms, that are profusely sprinkled over it. The posterior wings are adorned with a large blue spot, which derives additional lustre from the dusky colour surrounding it. Another species, very similar to Papilio Paris, but without this spot, is also found in China. It is the supposed female of our species. Fabricius names it Bianor, after *Cramer*, *pl.* 103. *fig.* 6.

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### PAPILIO CRINO.

#### SPECIFIC CHARACTER.

Wings tailed, black, entirely covered with resplendent greenish, or golden specks. A band of blue green across the wings. Under side, brown, with lunar marks.

PAPILIO CRINO: alis caudatis nigris: atomis viridi aureis fascia communi cœruleo viridi, posticis subtus lunulis viridibus cœruleis cinereisque. *Fab. Ent. Syst. T.* 3. p. 5. 13.

## LEPIDOPTERA.

The beauty of the preceding species claims our notice: *Papilio Crino*, our admiration. Its form is graceful, its colours splendid; and in addition to those attractions, it is extremely rare. We have found an unique specimen of this species in the collection of Mr. Drury, and on that authority we include it as a native of China. It has not been figured by any author. Fabricius describes the same insect under the specific name *Crino*, erroneously giving its *habitat*, Africa.

### *Renealmia exaltata.*

Flowered in the summer of the present year, both in the stove of G. Hibberts, Esq. and at Messrs. Grimwoods and Wyke's, Kensington. It is a majestic plant, near seven feet in height, and bears a fine pendent group of flowers at the summit.

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## PAPILIO AGENOR.

### SPECIFIC CHARACTER.

Wings indented, black, sanguineous-red at the base: posterior wings white, with black spots.

PAPILIO AGENOR: alis dentatis nigris basi sanguineis: posticis disco albo; maculis nigris.

*Lin. Syst. Nat.* 2. 747. 14.

*Fab. Ent. Syst.* T. 3. p. 13. 39.

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This is one of the largest Chinese Papiliones we are acquainted with. The upper and under surfaces so nearly agree, that we have considered a figure of the first unnecessary. It is represented with *Papilio Coon* on the

### *Plumbago Rosea. Rose coloured Lead-Wort.*

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## PAPILIO PERANTHUS.

### SPECIFIC CHARACTER.

Wings tailed, indented, above black, green at the base: beneath, pale at the ends. Seven lunar marks on the posterior wings.

PAPILIO PERANTHUS: alis dentato caudatis nigris supra basi viridibus, subtus apice pallidis: posticis lunules septem fulvis. *Fab. Ent. Syst.* T. 3. p. 1. 44. 15.

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Uncommonly scarce, and not hitherto figured. Fabricius has given it as a new species, *Peranthus*, and refers to a specimen in the collection of the Right Hon. Sir J. Banks, Bart. That insect came from Cochinchina. We have seen another, which came from Canton: it is represented on a small twig of

### *Arundo Bambos. Bamboo or Cane.*

This well known plant is mentioned by Sir G. Staunton among the most useful productions of China.

LEPIDOPTERA.



\* *Papilio Goen.*

\* *Papilio Agenor.*



LEPIDOPTERA.



*Papilio Peranthus.*





LEPIDOPTERA.



*Lapilio Laomedon?*

London Published as the Act directs by E. Donovan April 1. 1796.

## LEPIDOPTERA.

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### PAPILIO LAOMEDON.

#### GENERIC CHARACTER.

Antennæ clubbed at the end. Wings erect when at rest. Fly by day.

#### SPECIFIC CHARACTER.

Wings indented: anterior pair brown, posterior black: with two red spots on the interior angle.

PAPILIO LAOMEDON: alis dentatis: anticis fuscis, posticis nigris: macula duplici rufa anguli ani.

*Fab. Ent. Syst.* 3. p. 1. 12. 35.—*Jon. fig. pict.* 1. tab. 10.

---

We have reason to conclude that this superb Butterfly has never been figured by any preceding author. Fabricius described it in his *Entomologiæ Systematica* from one of the original drawings, in the collection of Mr. Jones, and refers exclusively to that figure, in a synonym to his description. Mr. Jones having obligingly assisted us with his collection of drawings, and given us permission to copy any of them, we cannot withhold enriching our volume with a figure of *Papilio Laomedon*.

The specimen, from which the drawing was made, was in the collection of Mr. Latham.

# LEPIDOPTERA.

---

## PAPILIO COON.

### GENERIC CHARACTER.

Antennæ clubbed at the end. Wings erect when at rest. Fly by day.

### SPECIFIC CHARACTER.

Anterior wings brown. Posterior wings, and tails, black: white spots at the base; and two yellow spots on the interior angle.

PAPILIO COON: alis caudatis concoloribus: anticis fuscis. Posticis nigris basi albo maculaque duplici anguli ani flava. *Fab. Ent. Syst.* 3. p. 1. 10. 27.—*Jon. fig. pict.* 1. tab. 36.

---

This beautiful species is selected from the drawings of Mr. Jones; because we presume that a figure of it has never been published before.

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## PAPILIO EPIUS.

### GENERIC CHARACTER.

Antennæ clubbed at the end. Wings erect when at rest. Fly by day.

### SPECIFIC CHARACTER.

Wings indented, brown with yellow spots: a red spot on the interior angle of the posterior wings.

PAPILIO EPIUS: alis dentatis fuscis flavo maculatis: posticis macula anguli ani rufa. *Fab. Ent. Syst.* 3. p. 1. 35. 102.

---

Papilio Epius and Papilio Demoleus are so similar in their marks and colours, that most authors have confounded one species with the other. Papilio Epius is chiefly distinguished by the red spot in the interior margin of the lower wings, having no blue eye-shaped mark above it.

LEPIDOPTERA.



\* *Papilio Epius.*

\* *Papilio Demoleus.*





LEPIDOPTERA.



\* *Papilio Telamon.*

\* *Papilio Agamemnon.*

## LEPIDOPTERA.

---

### PAPILIO TELAMON.

#### TELAMON BUTTERFLY.

##### GENERIC CHARACTER.

Antennæ increase in bulk towards the extremity, and usually terminate in a kind of club.

Wings, when at rest, erect. Fly in day time.

##### SPECIFIC CHARACTER.

Wings and tail yellowish, with spots and bands of black. A red streak on the under wings.

PAPILIO TELAMON: alis caudatis concoloribus flavescenibus: maculis fasciis nigris; posticis utrinque  
friga sanguinea.

---

The singular delicacy and beauty of this Papilio is not the only claim it has to the particular attention of Entomologists: it is clearly an undescribed species; and perhaps the only specimen of it yet brought to Europe, is that from which our figure is copied. It was taken near Pekin, by a gentleman in the suite of Earl Macartney, in the late embassy to China; and is at this time in the possession of Mr. Francillon of London, who has kindly permitted us to make drawings and descriptions of this, and every other insect in his magnificent collection that could enhance the value of this publication.

Papilio Telamon bears a distant resemblance to *P. Protefilaus*, but a much stronger to *P. Ajax*: pursuing then the metaphorical method of arranging the butterflies in the Linnæan manner, we have given it the name of the father of Ajax, who was one of the distinguished Grecian Princes at the siege of Troy.

LEPIDOPTERA.

---

PAPILIO AGAMEMNON.

AGAMEMNON BUTTERFLY.

GENERIC CHARACTER.

Antennæ increase in bulk toward the extremity, and usually terminate in a kind of club.

Wings, when at rest, erect. Fly in day time.

SPECIFIC CHARACTER

AND

SYNONYMS.

Upper side : wings, and tails, black, with green spots. Three lunar red spots on each of the under wings.

PAPILIO AGAMEMNON : alis caudatis nigris viridi maculatis : posticis subtus lunulis tribus rufis. *Lin. Syst.*

*Nat.* 2. 748. 22.

*Fab. Ent. Syst.* T. 3. p. 1. 33. 98.

PAPILIO ÆGISTHUS. *Cram. Inf.* 9. tab. 106. fig. C. D.

---

Papilio Agamemnon is found in several parts of Asia. The under side is beautifully adorned with a number of bright green spots of various sizes. The general colour is pale pink, diversified with shades of chestnut brown. The upper side is much plainer ; the general colour is black, except on the spots, which are green, and precisely agree in shape with those on the under side.



LEPIDOPTERA.



*Papilio Menelaus*, var.

*Papilio Rhetenor*, ciam.

## LEPIDOPTERA.

---

### PAPILIO RHETENOR.

#### SPECIFIC CHARACTER

#### AND

#### SYNONYMS.

Wings indented: above shining blue; beneath clouded, and marked with brown spots.

PAPILIO RHETENOR. *Cram. Inf. 6. tab. 15. fig. A. B.*

*Sulz. Hfß. Inf. tab. 13. fig. 1.*

*Sulz. et Roem. p. 68.*

PAPILIO MENELAUS: alis dentatis: supra cœruleis nitidissimis, subtus nebulosis: punctis fuscis.

*Linn. Syst. Nat. 2. 748. 20.*

---

Most naturalists are undetermined whether Papilio Menelaus and the supposed variety, Papilio Rhetenor, should not be considered distinct species. The colour of the upper side is nearly the same in both insects; but the under sides are very different. The Linnæan description of the male, P. Menelaus, agrees with Papilio Rhetenor, and probably he considered them the two sexes of one insect. Fabricius would certainly have made a new species of it, if he had not been of the same opinion. We have both insects before us, and should most assuredly make a new species of P. Rhetenor, as Cramer and Sulzer have done, if the authority of the last work of Fabricius were not opposed to us.

Papilio Menelaus is a native of South America. Sulzer's specimen of Papilio Rhetenor came from China. Foreign Entomologists, for this and other reasons, have considered them distinct species. The curious in insects, says Cramer, call this butterfly *Le Satiné bleu oblong*, to distinguish it from P. Menelaus, or *Le Satiné bleu vulgaire*.—Cramer has also given a third and much smaller kind of these blue butterflies, *Pap. Adonis*, which Fabricius also considers a variety of Menelaus.

Whatever effect the artist can produce by a combination of the most brilliant colours employed in painting, he must shrink from comparison of it with this splendid creature. It is impossible to find in any part of the animal creation colours more beautiful or changeable. Pale blue is the principal colour, but new tints meet the eye in every direction, varying from a silvery green to the deepest purple; and the whole surface glittering with the resplendence of highly polished metal.

## LEPIDOPTERA.

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### *Thea Laxa.*—*Bohea, or broad-leaved Tea.*

Sir G. Staunton says the bohea tea is supplied in China from the province of Fochien: the green tea from Kiang-nan. The leaves of these teas vary in some degree in form according to the age of the plant; those of the bohea are the broadest; *Thea stricta* has much longer leaves, they are lanceolated, and more deeply serrated than those of the bohea. Many authors have considered them varieties of the same species. —Flowers in England in August and September.

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## PAPILIO OENONE.

### GENERIC CHARACTER.

Antennæ clubbed at the end. Wings erect when at rest. Fly by day.

### SPECIFIC CHARACTER

#### AND

### SYNONYMS.

Wings indented: yellowish with black margins: the base of the posterior wings bright azure.

PAPILIO OENONE: alis denticulatis luteis margine nigris: posticis basis cyaneis. *Linn. Syst. Nat.* 2. 770. 135.

*Fab. Ent. Syst.* 3. p. 1. 280.

*Kleman, Inf.* 1. tab. 3. fig. 1, 2.

---

Found throughout Asia: in China is very common.

LEPIDOPTERA.



\* *Papilio Oenone.*

\* *Papilio Almana.*

\* *Papilio Labentius. var*





LEPIDOPTERA



\* *Papilio Vesta.*

*Papilio Parithoe* \*

\* \* *Papilio Hyparete.*

## LEPIDOPTERA.

---

### PAPILIO VESTA.

#### SPECIFIC CHARACTER.

Wings oblong, entire, yellow brown, margined with black spots.

PAPILIO VESTA: alis oblongis integerrimis flavescentibus: margine nigro punctato. *Fab. Ent. Syst.*  
*T. 3. p. 2. 163. 503.*

---

Papilio Vesta is the only insect of the *Heliconi* division of Butterflies, described by Fabricius as peculiar to China, in his *Ent. Syst.* It is a rare species, and has not been figured in any work, unless the *Papilio Terpsichore* of Cramer prove the same species. The *Papilio Vesta* of that author is a very different insect, being the *P. Erato* of Fabricius.

---

### PAPILIO PASITHOE.

#### SPECIFIC CHARACTER.

Wings oblong, entire, black. A central white spot on each wing, and radiated white marks near the margin. Under side, posterior pair yellow: a space of blood red colour on the base.

PAPILIO PASITHOE: alis oblongis nigris albo subradiatis: puncto centrali albo, posticis subtus luteis basi cruentatis. *Linn. Syst. Nat. 2. 755. 53.*

*Fab. Ent. Syst. T. 3. p. 2. 179. 555.*

Papilio Porfenna. *Cram. Inf. 4. tab. 43. fig. D. E.*

---

Not so rare as the preceding species; but by no means common. The upper surface is uniformly black, except the radiated white marks, similar, to those seen on the under surface of the anterior wings; and the white central spot. It exhibits no trace of the red, and scarcely a tinge of the yellow colour so conspicuous on the under surface.

## LEPIDOPTERA.

---

### PAPILIO HYPARETE.

#### SPECIFIC CHARACTER.

Wings entire, oblong, white, veined with black. Under side of the posterior pair yellow, with a border of red spots.

PAPILIO HYPARETE: alis oblongis integerrimis albis nigro venosis: posticis subtus flavis: margine rubro maculato. *Linn. Syst. Nat.* 2. 763. 92.

*Fab. Ent. Syst. T.* 3. p. 2. 178. 554.

Papilio Antonöe. *Cram. Inf.* 16. tab. 187. fig. C. D.

Papilio Eucharis. *Cram. Inf.* 17. tab. 201. fig. B. C.

---

We have two sorts of this species; one with the marginal row of red spots on the posterior wings, disposed in a deep border of black; the other has the red spots on a whitish ground. They are certainly the two sexes of Papilio Hyparete. Found near Canton in China.

#### *Sophora Japonica.*—*Shining-leav'd Sophora.*

An elegant and valuable timber tree. Sir G. Staunton speaks of it as very frequent in China. It is noticed in the lists of plants collected in the journey between Pekin and Zhe-hol in Tartary, and in the provinces of Shan-tung and Kiang-nan, and also in the province of Pe-che-lee.



LEPIDOPTERA.



\* *Papilio Pyranthe.*

\* *Papilio Philea.*

## LEPIDOPTERA.

---

### PAPILIO PRYANTHE.

Antennæ increase in bulk towards the extremity, and usually terminate in a kind of club. Wings, when at rest, erect. Fly in day-time.

#### SPECIFIC CHARACTER.

Wings roundish, above white, tips black, with a black spot in the middle of the wings. Beneath a pale ash colour, with wavy lines and a fulvous spot.

PAPILIO PRYANTHE. Alis rotundatis albis puncto apiceque nigris, subtus cinereo undatis: puncto fulvo.  
*Lin. Syst. Nat.* 2. 763. 98.

---

This is a rare species, and has not been figured by any author.

---

### PAPILIO PHILEA.

#### SPECIFIC CHARACTER.

Wings entire, somewhat angulated, yellow. A large orange spot on the anterior pair. Margin of the posterior pair orange.

PAPILIO PHILEA: alis integerrimis angulatis flavis: anticis macula posticis limbo luteis.  
*Linn. Syst. Nat.* 2. 764. 104.

---

Roefel has given a figure of this beautiful butterfly in the fourth volume of the *Insecten Bellustigung*, and calls it *die indianische Goldborte*; Linnæus also notes it as an Indian species. Our specimen was received from China by the late Mr. Keate: it is represented with the preceding species on the

#### *Melastoma Chinenfis,*

A plant recently introduced into this country.

## LEPIDOPTERA.

---

### PAPILIO GLAUCIPPE.

#### SPECIFIC CHARACTER.

Wings rounded, entire, white. Anterior pair, black at the ends (and furrounding an orange space).  
Under side greyish with brown waves.

PAPILIO GLAUCIPPE: alis rotundatis integerrimis albis: anticis apice nigris, posticis subtus cinereis fusco undatis. *Linn. Syst. Nat.* 2. 762. 89.

---

Papilio Glaucippe is an elegant insect: very common in China, and it is said, in some adjacent parts of Asia also. The Papilio Callirrhoe of Linnæus is considered as the female of this species: few authors deem it more than a variety ( $\beta$ ).

---

### PAPILIO SESIA.

#### SPECIFIC CHARACTER.

Wings roundish, above yellowish, black at the ends, with a large fulvous orange spot. Beneath, seven white eye-spots.

PAPILIO SESIA: alis rotundatis albis<sup>b</sup> apice (medio fulvo) nigris: posticis subtus maculis septem ocellaribus albis. *Fab. Ent. Syst. T.* 3. p. 1. 203. 636.

Papilio Pyrene. *Linn. Syst. Nat.* 2. 161. 86.

---

Fabricius, as well as Linnæus, considers this as an American insect: Mr. Drury received his specimens from China, and that represented in the annexed plate was also brought from the same country by the late Mr. Ellis.

#### *Limodorum Tankervilleæ,*

An elegant and much admired production of China: it was introduced in 1788, and named in compliment to the Earl of Tankerville.

<sup>b</sup> Alæ anticæ flavissimæ, &c. vide general description.

LEPIDOPTERA.



*Papilio Glaucippe.*      *Papilio Sesia.*

London. Published, as the Act directs, by E. Dimsdale, November 22, 1798.





LEPIDOPTERA.



*Papilio jairus.*

London Published as the Act directs by E. Donovan Feb. 11. 1798.

# LEPIDOPTERA.

---

## PAPILIO JAIRUS.

### JAIRUS BUTTERFLY.

#### GENERIC CHARACTER.

Antennæ increase in bulk towards the extremity, and usually terminate in a kind of club.

Wings, when at rest, erect. Fly in day time.

#### SPECIFIC CHARACTER

AND

#### SYNONYMS.

Wings entire, brown: middle of the lower wings white; on the upper surface of each, near the posterior margin, an eye-shaped spot; on the under surface two.

PAPILIO JAIRUS: F. alis integerrimis fuscis: posticis disco albo supra oculo subtus duobus.—*Fab. Ent.*

*Syst. T. 3. pl. 1. p. 54. 168.*

PAPILIO JAIRUS. *Cram Pap. tab. 6. fig. A. B.—tab. 185. fig. A. B. C.*

*Clerk Icon. tab. 29. fig. 3.*

---

A specimen of this extremely rare Butterfly is contained in the collection of Dr. Hunter; a fragment in the British Museum; and one in fine preservation in the collection of Mr. Francillon. Except these, and the specimens from which the figures in the annexed plate are copied, we have never seen it in any cabinet whatever.

It has been figured only by two authors, Clerk in his *Icones insectorum rariorum*, and Cramer in his *Papillons exotique*. The figures of Clerk and Cramer do not strictly agree: we observe those of the first much lighter coloured, and the white space on the upper wings considerably larger than in any of the figures in Cramer's plates<sup>r</sup>.

Fabricius says it is a native of the East Indies. One specimen figured by Cramer was brought from the isle of Amboyna. It seems therefore, not peculiar, like some insects, to China.

<sup>r</sup> The copy of this exceedingly scarce work of Clerk, which we had an opportunity of comparing with Cramer's works, is in the invaluable library of the Right Hon. Sir J. Banks, Bart.

# LEPIDOPTERA.

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## PAPILIO ANTIOCHUS.

### ANTIOCHUS BUTTERFLY.

#### GENERIC CHARACTER.

Antennæ increase in bulk towards the extremities, and usually terminate in a kind of club.

Wings, when at rest, erect. Fly in day time.

#### SPECIFIC CHARACTER

AND

#### SYNONYMS.

Wings entire, roundish, black: a broad band of bright yellow brown continued across the upper surface of the wings.

PAPILIO ANTIOCHUS: P. F. alis integerrimis rotundatis nigris: supra fascia communi fulva. *Linn. Mant.*  
1. 537.—*Fab. Ent. Syst. T. 3. p. 2.—44. 134.*

PAPILIO EUPALEMON. *Cram. Pap. 12. tab. 143. fig. B. C.*

*Drury Inf. 3. tab. 7. fig. 3. 4.*

*Aubert. Miscell. tab. 68. fig. 3. 4.*

---

Papilio Antiochus is very rare in European cabinets of insects. The specimen figured by Drury came from the Brazils, and Cramer's from Surinam. Fabricius describes it as a native of China. The insect figured in the collection of drawings of Mr. Jones of Chelsea, was a native of China, as well as the specimen in our collection.

LEPIDOPTERA.



*Papilio facintha.*      *Papilio Antiochus.*





LEPIDOPTERA.



*Papilio Gambricius.*

## LEPIDOPTERA.

---

### PAPILIO JACINTHA.

#### SPECIFIC CHARACTER.

Wings brown, icalloped. A row of white spots on the anterior pair. Ends of the posterior pair white.

PAPILIO JACINTHA: alis repando dentatis fuscis: anticis friga punctorum alborum, posticis apice albis.

*Fab. Ent. Syll. T. 3. p. 1. 60. 187.*

---

This curious butterfly was found in the province of Pe-tche-lee, in China, by the gentleman who discovered the elegant Papilio, *Telamon*, near Pekin; and has otherwise, by his attention to entomology, added some interesting species to our catalogue of Chinese insects. P. Jacintha is represented with P. Antiochus, on a leaf of the

*Urtica Nivea. White Nettle* <sup>c</sup>.

---

### PAPILIO GAMBRISIUS.

#### SPECIFIC CHARACTER.

Wings indented. Above black, with spots and streaks of green; and a band of white transparent spots on the anterior pair.

PAPILIO GAMBRISIUS: alis dentatis supra nigris viridi maculatis striatisque: anticis fascia maculari nivea.

*Fab. Ent. Syll. T. 3. p. 2. 264.*

---

A specimen of this very rare Papilio, was taken in one of the small islands on the eastern coast of China, and is in the possession of Mr. Francillon. Sir J. Banks, Bart. has a specimen of it from another part of the East Indies.

<sup>c</sup> Sir G. Staunton speaks of a cloth that the Chinese manufacture from the fibres of a dead nettle. Query, Is this the species employed for that purpose? no other is noticed by that author in the lists of plants collected in China.

The nettle is of general use in Russian Tartary also; the *Kuriles*, and other Siberian tribes, make cloth, cordage, thread, &c. of it. *Gordon, &c.*

## LEPIDOPTERA.

---

### PAPILIO LUBENTINA.

#### SPECIFIC CHARACTER.

Wings dentated, dark, greenish, with spots of white, black, and red.

PAPILIO LUBENTINA: alis dentatis obscure virecentibus albo nigro rufoque maculatis.

*Fab. Ent. Syst. T. 3. p. 2. 121. 370.*

---

PAPILIO LUBENTINA, is figured only in the works of Cramer: his specimen is not precisely like ours, but agrees in all the essential peculiarities, and is unquestionably the same species. The semitransparent spots on the anterior wings are much larger in Cramer's figure than in the insect before us.

---

### PAPILIO LEUCOTHÖE.

#### SPECIFIC CHARACTER.

Wings dentated, above brown, with three white bands across. Beneath yellow brown, with three similar white bands, and black characters.

PAPILIO LEUCOTHÖE: alis dentatis, supra fuscis: fasciis tribus albis: subtus luteis: fasciis tribus albis nigro notatis. *Linn. Syst. Nat. 2. 780. 179.*

---

This pretty insect is very common about Canton, in China.

---

### PAPILIO POLYXENA.

#### SPECIFIC CHARACTER.

Wings dentated: above brown, with three white bands across. Beneath yellowish orange, with three white bands: a row of black spots on the lower one.

PAPILIO POLYXENA: alis dentatis, supra fuscis: subtus luteis: fasciis utrinque tribus albis, posteriore subtus nigro-punctata.

This seems to have been confounded with the preceding species both by Linnæus and Fabricius. Linnæus first describes it as the female, and afterwards as a variety of it; but it certainly is a very distinct species.

LEPIDOPTERA.



*Papilio Erymanthis.*    *Papilio Ceryx.*  
*Phryx.*    *Leucethoe.*





LEPIDOPTERA.



*Papilio Bernardus.*

London Published at the Act directr by E. Donovan. May 1, 1798.

## LEPIDOPTERA.

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### PAPILIO BERNARDUS.

#### FESTOON ORANGE BUTTERFLY.

##### SPECIFIC CHARACTER.

Orange colour. A broad bar of yellow across the anterior pair of wings: ends black. Posterior pair with two tails, and a festoon of black spots, with an eye in the centre of each.

PAPILIO BERNARDUS: alis caudatis fulvis: anticis apice atris; fascia flava, posticis striga punctorum ocellatorum. *Fab. Ent. Syst. 2. p. 1. 71. 223.*

---

This uncommonly rare Chinese butterfly has certainly never been figured in any preceding work. It will also be probably new to the collectors of exotic insects, in this country at least. Fabricius described it only from the accurate drawings of Mr. Jones, as appears by the reference added to the description in his *Entomologia Systematica*.

#### *Camellia Japonica*.—*Japan Rose*.

A native of Japan and China. It bears blossoms from January to May. This is a lofty and magnificent plant, rising to the height of several feet: there is a variety of it with double flowers, perfectly white; and another in which the flowers are variegated with white and red.

---

### PAPILIO ERYMANTHIS.

#### YELLOW JAGGED-BAR BUTTERFLY.

##### SPECIFIC CHARACTER.

Wings indented, brown: a broad bar of yellowish colour across the anterior pair; exterior ends black.

Lunar marks on the posterior pair, and a row of eye-shaped spots beneath.

PAPILIO ERYMANTHIS: alis dentatis fulvis: anticis apice nigris; fascia flava, posticis supra lunulis, subtus striga punctorum ocellatorum. *Fab. Ent. Syst. 2. part 1. p. 139. 427.*

---

It is the rarity, and not the beauty of this butterfly, which has induced us to add it to our selection. We apprehend it is far from common in China, being very seldom sent to Europe among the insects of that country.

## LEPIDOPTERA.

---

### PAPILIO ORYTHIA.

#### VARIABLE BLUE AND BROWN BUTTERFLY.

##### SPECIFIC CHARACTER

##### AND

##### SYNONYMS.

Wings indented, brown. On the upper side two eyes in each, and another on the under side of the anterior wings.

PAPILIO ORYTHIA: alis dentatis fuscis: omnibus supra ocellis duobus, anticis subtus unico. *Lin. Syst.*

*Nat. 2. 770. 130.*

*Fab. Syst. Ent. 2. part 1. p. 91. 284.*

---

The varieties of Papilio Orythia are numerous, and seem to differ according to climate of the countries of which they are natives. It is common in North America, Jamaica, India, &c. The variety from North America is almost wholly brown, and those from Jamaica have less blue in the disk of the lower wings, than those from China.

Papilio Clelia of Cramer, which is found on the coast of Guinea, has been supposed a variety of Papilio Orythia. Fabricius, in the *Entomologia Systematica*, has made it a distinct species. It greatly resembles P. Orythia, but has no more blue colour on the posterior wings than is concentrated in a large spot near the base.

---

### PAPILIO ALMANA.

#### DOUBLE-EYE ANGULATED BUTTERFLY.

##### SPECIFIC CHARACTER

##### AND

##### SYNONYMS.

Wings angulated, brown, varied with black marks; a large eye with two pupils in the middle, on the posterior wings. Beneath, entirely brown.

PAPILIO ALMANA: alis angulatis fulvis nigro maculatis: posticis ocello majori; pupilla gemina, omnibus subtus brunneis. *Linn. Syst. Nat. 2. 769.*

*Fab. Ent. Syst. 3. p. 1. 278.*

---

The angulated form of the wings of this butterfly gives it a remarkable appearance. The eyes on the wings somewhat resemble those of the Peacock butterfly, to which, in some other respects, it bears no distant similitude. It is common in China; Fabricius gives its *habitat* Asia.



LEPIDOPTERA.



\* *Hesperia Atymnus*. \* *Hesperia Morcenas*.

## LEPIDOPTERA.

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### PAPILIO MÆCENAS.

#### GENERIC CHARACTER.

Antennæ increase in bulk towards the extremity, and usually terminate in a kind of club.

Wings, when at rest, erect. Fly in day-time.

Plebeii rurales. *Linn.*<sup>c</sup>

#### SPECIFIC CHARACTER.

Upper side black, disk blue. Two tails to each posterior wing. Under side clouded with brown.

HESPERIA MÆCENAS: alis bicaudatis atris: disco cœruleo, subtus brunneo nebulosis.

*Fab. Ent. Syst. T. 1. p. l. 271. 45.*

---

We are indebted for this rarity to T. Marfham, Esq. It is described by Fabricius from an original drawing<sup>d</sup>, and has not been figured by any author.

<sup>c</sup> *Plebeii rurales*, alis maculis obscurioribus. Spots on the wings obscure, or not transparent.—The *plebeii* is the last family of Butterflies in the Linnæan system, and is divided into two sections, *rurales* and *urbicolæ*. Fabricius removes this family from the *Papilionæ* (Butterflies) to a new genus *Hesperia*. This genus is however divided after the Linnæan method into two sections, *rurales* and *urbicolæ*, and contain nearly the whole of the Linnæan *plebeii*, in addition to the later discovered species. The essential character of the *Hesperia* is, *Palpi* two, compressed, hairy, apex cylindrical, naked. Antennæ clubbed, oblong, often crooked at the extremity.

<sup>d</sup> *Fen. fig. piët. G. tab. 3. fig. 2.*

LEPIDOPTERA.



PAPILIO ATYMNUS.

SPECIFIC CHARACTER.

Wings bright brown. Anterior pair black at the tips. Posterior pair furnished with tails.

HESPERIA ATYMNUS: alis caudatis fulvis: anticis apice nigris.

*Fab. Ent. Syst.* 1. p. 1. 283. 88.

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This is also a scarce species. Our specimen is from the collection of the late Duchess Dowager of Portland, who procured it from China. Another specimen in the cabinet of Sir J. Banks, Bart. is from Siam.

*Hemerocallis Japonica.*

Brought from China by Mr. Slater, and flowered in July 1798 in the green-house of G. Hibberts, Esq. Clapham.



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\* *Sphinx Nectus.* *Sphinx Polymena.* 25.

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### SPHINX NECHUS.

#### SPECIFIC CHARACTER.

Wings entire: anterior pair greenish, with testaceous marks. Posterior pair black; a band of yellow spots across the wings, and a single spot near the base.

SPHINX NECHUS: alis integris: anticis viridibus; friga testacea, posticis nigris: maculis fuscis fasciaque flavis. *Fab. Ent. Syst.* 3. p. 1. 377. 62.

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The number of Chinese species of this genus, already described, is very limited: our present insect is the largest of them; but, as this is inferior in size to several kinds found in Europe, we conceive there must remain many larger species of the genus unknown to collectors of foreign insects, and yet very common in China. In the latter part of Sir G. Staunton's work, that author mentions the larva of a *Sphinx Moth* which furnish an article for the table of the Chinese. We regret that the indefinite expression cannot assist us to determine the species, and scarcely the genus, of the insect alluded to<sup>e</sup>.

The specimen figured in the annexed plate, is in the collection of Mr. Francillon, who received it from China. A small variety of the same species is found in North America, and figured by Cramer. *Sphinx Batus* and *Sphinx Gnoma* are nearly allied to this insect, particularly the former; both are found in different parts of the East Indies.

<sup>e</sup> European naturalists are entirely ignorant of the Chinese insects in the state of larva and pupa, if we except a few species of the Cimices, Cicada, and some altogether uninteresting insects, that have been accidentally brought among others from that country. Hence it must remain undetermined whether they correspond in form with those of other parts of the world. It is, however, highly probable, from their great affinity to those, in the perfect state, that in the state of larva they may also agree. The extensive collection of the larva of sphinges made by Mr. Abbot in North America affords no singularly constructed animal distinct from those found in Europe; they vary indeed in their colours, but preserve uniformly the characters found on the same genus in other countries. We noticed among the drawings of the late Mr. Bradshaw the figure of a Chinese sphinx, apparently *S. Hylar*, together with a larva similar to that of the *Sphinx Stellatarum*: it was green, and, like all the known larva of the genus, (except the *Alcina* division) was perfectly free from hairs: it was also furnished with a horn at the posterior part of the body.

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### SPHINX POLYMENA.

#### SPECIFIC CHARACTER.

Wings black, with three yellow spots on the anterior pair, and two on the posterior pair. Abdomen belted with two bright red bands.

SPHINX POLYMENA: *Lin. Syst. Nat.* 806. 40.

*Zygæna Polymena*: nigra alis maculis luteis anticarum tribus posticarum duobus. Abdomine cingulis duobus coccineis. *Fab. Ent. Syst.* 3. p. 1. 396. 34.

---

We suspect this beautiful creature is scarce in China; at least it is very rarely found among the insects brought from that country. It is figured on the plate with the

### *Rosa semperflorens—Ever-blowing China Rose.*

A plant lately introduced from China, but thrives well in this climate, and bears a beautiful deep red flower, throughout most part of the summer season.

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### SPHINX HYLAS.

#### SPECIFIC CHARACTER.

Wings transparent. Abdomen green, with a purple belt round the middle. Apex bearded.

SPHINX HYLAS: *Linn. Mant.* 1. 539.

*Sesia Hylas*: alis fenestratis, abdomine barbato viridi: cingulo purpureo. *Fab. Ent. Syst.* 3. p. 1. 379. 3.

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The Sphinges with transparent wings may be separated from the others with much propriety: Fabricius includes them in his new genus *Sesia*; but that genus is not formed exclusively of such insects, his essential characters being taken from the structure of the *palpi*, *tongue*, and *antennæ*. The *Sphinx fuciformis* found in England somewhat resembles this Chinese species.

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*Sphinx Hylas.*

*Sphinx Thallo.\**

\_\_\_\_\_\**ruficollis.*

\_\_\_\_\_\**bifasciata.*



# LEPIDOPTERA.

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## SPHINX THALLO.

### SPECIFIC CHARACTER

#### AND

#### SYNONYMS.

Wings oblong, entire black, two bars of white on the anterior wings, and a yellow space on the posterior pair.

PAPILIO THALLO: alis oblongis integerrimis nigris: anticis fasciis duabus, posticis unica flavis. *Linn. Syst. Nat.* 2. 756. 62.

Papilio Thallo: *Fab. Ent. Syst.* 3. p. 1. 173. 537.

Sphinx pectinicornis: *Linn. Syst. Nat.* 2. 807. 44?

*Fab. Ent. Syst.* 3. p. 1. 399. 44?

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It is altogether perplexing, and mysterious to us, that Fabricius, throughout all his works, and even in his last enlarged and corrected systematic arrangement, has given a Papilio Thallo in the *Heliconii* division of that genus, when it is clear no such Papilio has existence. Linnæus has, undoubtedly, so named an insect figured in a plate of Edwards's birds, tab. 226, with a reference to that work; yet it is certain the insect there figured is not a butterfly, but a lepidopterous insect, to which antennæ of dubious structure have been added, to perfect its appearance<sup>f</sup>. No later author has figured the same species; and specimens of it being extremely scarce, it is probable Fabricius has been unable to detect the error. In admitting this, however, we must necessarily notice the synonyms of *Sphinx pectinicornis*, where he also quotes the same figure in the works of Edwards. Thus we find, throughout all the editions of the Fabrician System, a *Papilio Thallo* and *Sphinx pectinicornis* formed of the solitary figure of one insect. Cramer has finally increased the ambiguity of its genera, by making an insect of close affinity, perhaps the same species, a *Phalæna*. *Vide P. Tiberina*.

<sup>f</sup> Coincident observations on perfect specimens of several insects, nearly allied to this species, tend to convince us, that the artist had only a mutilated specimen to copy from. Indeed, though the antennæ in his figure are terminated in a kind of capitulum, like that of the butterflies, the filaments are somewhat jagged, as if intended to appear slightly pectinated. Cramer notices the very close affinity between his insect, *P. Tiberina*, and that in Edwards's work; which, he observes, differs neither in form nor colour, but only in having clubbed antennæ: those parts of his insect being pectinated or feathered. — "Mr. Edwards a représenté un Papillon, qui ne diffère de celui-ci, ni pour la couleur, ni pour la dessin, mais qui a des antennes à boutons. Celui que nous donnons ici est gravé d'après une Phalène qui a des antennes plumacées," &c. *Cram. C. D.* Pl. 32.

Edwards calls this insect the little black and white Butcher fly, because it is figured on a plate with the black and white Butcher bird.

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With specimens of both the insects figured by Edwards and Cramer before us, we cannot hesitate to consider them Sphinges of the *Adscitæ*<sup>z</sup> family, and of the *Zygæna* of Fabricius. In removing our insect to the sphinx genus, we have retained the specific name *Thallo*, as more likely to denote the species than any newly adopted name. The insect figured by Cramer does not precisely agree with Edwards's figure. In the first, the disk of the posterior wings are yellowish, with a deep border of black: in the other, the yellow occupies only a space near the base, and forms a semi-lunar mark near the anterior margin of those wings. We suspect, with Cramer, that they are but the two sexes of one species. Cramer says both his specimens came from China, from whence our insects were also received.

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### SPHINX RUFICOLLIS.

#### SPECIFIC CHARACTER.

Wings entire; black purple, a semicircular yellowish band communicating across all the wings; and two spots of the same colour near the apex. Collar reddish.

SPHINX RUFICOLLIS: alis integerrimis nigro-purpurefcentibus fascia communi maculisque duabus flavis, thorace antice brunneo.

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This and the following species are undoubted nondescripts: both specimens are in the collection of Mr. Francillon, who received them from China.

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### SPHINX BIFASCIATA.

#### SPECIFIC CHARACTER.

Wings fulvous or orange, a black bar across the middle of the anterior wings: tips black.

SPHINX BIFASCIATA: alis fulvis fascia apiceque nigris.

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Sphinx Hylas, *Thallo*, *ruficollis*, and the elegant little species *Sphinx bifasciata*, are represented on the plate with the

#### *Thuja Orientalis*.—*China Abor-vitæ Tree*,

An ornamental evergreen, much esteemed by the Chinese, and very frequently represented in their landscapes. Sir G. Staunton remarks in the account of the journey from Peking to Canton, that great quantities of this plant grew to a prodigious height in the valley in which stands the city of Yen-choo-foo.

<sup>z</sup> The *Adscitæ* differ from the other sphinges, in their general appearance, but have all the characters assigned to that genus.



LEPIDOPTERA.



*Phalæna Atlas.*

# LEPIDOPTERA.

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## PHALÆNA ATLAS.

### GENERIC CHARACTER.

Antennæ fetaceous. Wings, in general deflexed when at rest. Fly by night.

*Bombyx.*

### SPECIFIC CHARACTER.

Wings much falcated or hooked. Colour, yellow brown, varied. A transparent spot in the middle of each wing; with a smaller one next that on the anterior pair.

PHALÆNA ATLAS: alis patentibus falcatis luteo variis: macula fenestrata anticis sesquialtera.

*Lin. Syst. Nat. T. 2. 808. 1.*

*Fab. Ent. Syst. T. 3. p. 1. 407. 1.*

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The Phalænæ are a tribe of insects remarkable for the neatness and simplicity of their colours. Their elegancies consist in the infinite variety, and delicacy of intermingled tints: the contrast of spots, specklings, and lineations, which constitute the minutiae of insect beauty. Some species are to be excepted in this remark; the larger kinds are often gaudy, and the smallest exhibit a display of the richest colours, fancifully disposed, and most elegantly diversified.

The European species are numerous, and pretty well ascertained: those of remote countries remain in great obscurity. The species inhabiting China are almost unknown<sup>o</sup>; for the latest systematic writer describes not more than twenty species in all the cabinets in Europe. From this scanty number a few are selected to illustrate the genus, and if these appear deficient in point of interest or variety, it may stimulate others to collect new species, whenever an opportunity occurs. The Phalæna tribe, not only of China, but every country, except of Europe, are a *desideratum* of entomology. In Europe the number of this tribe exceeds that of any other: on the contrary, the extra-European species are comparatively the most inconsiderable of our acquisitions. The Papiliones, or Butterflies, are a showy and lively race: they sport in the open fields in day, and attract the traveller's curiosity; hence our cabinets abound with them. But the moth, infinitely more numerous, and not less pleasing, is seldom seen; in the gloominess of its dispo-

<sup>o</sup> *Fab. Ent. Syst.* These are chiefly described from insects in the collection of *Monf. Londini*, of which no figures are extant, and the collection unknown.

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fitions, it seeks the obscurity of the forest in the day, and only ventures on the wing when the sun is down. In Europe we visit its nocturnal haunts without difficulty or dread; but in hotter climates these are oftentimes impenetrable, or the lurking places of ferocious animals; and few will expose themselves to their attacks, to increase the catalogue of exotic *Phalænæ* P.

*Phalæna Atlas* is the first species we have to notice. It is the largest of the moth tribe q, and is, indeed, a gigantic creature. The species is common, but not peculiar to China, being found in other parts of Asia, and in America. The influence of climate is easily traced in the *varieties* from different countries; that from Surinam is the largest, and of the deepest colours. The Chinese kind is the next in size; the colours incline to orange, and the anterior wings are more falcated or hooked at the ends. We have two other Asiatic *varieties* still smaller, with the wings extremely falcated.

The larva of *Phalæna Atlas* is figured by *M. Merian*, in the *Insecta Surinamensis*, plate 52: it is about four inches in length, green, with a yellow stripe disposed longitudinally. Upon each segment are four distinct round tubercles of a coral-like orange colour, which are surrounded with very delicate hairs. The pupa is large, and is inclosed in a web of an ochre colour. The silk of this web is of a strong texture, and it has been imagined, if woven, would be superior in durability to that of the common silk worm. *Seba* has also represented the larva at fig. 1. plate 57. vol. 4. *Theaurus Naturæ*. It is nearly six inches in length, and bulky in proportion; the *Phalæna* is also larger than that figured by Merian, which is a

P The far greater number of *Phalænæ* can only be taken in the woods at night. This is termed *mothing* by collectors. The moths begin to stir about twilight, and when almost dark, commence their flight. The collector is furnished with a large gauze folding-net, in which the insects are caught indiscriminately, for it is impossible to distinguish one species from another, and often is so dark, that the object itself can barely be discerned. Different species have their favourite haunts, some the lanes, and skirts of woods, but many of them prefer the open breaks in the most retired places. As it would be unsafe, or impossible, to penetrate the woods in many countries, it is better to collect the larva, or caterpillar, for these may be found on the trees in day-time, and if kept in little gauze cages, and carefully fed, will change into chrysalis, and produce the fly. This is certainly tedious, and few travellers will divert their attention from more important observations; but were they to appropriate their leisure to this branch of science, they would materially improve entomology. Mr. Abbot has investigated a small district of Georgia, in North America, in this manner, and our cabinet is indebted to his labours for several hundred species, altogether new in Europe. The reader may estimate the importance of these discoveries, by referring to the two expensive volumes of North American Insects, lately published; and reflecting, that the originals of all the species included in that work, are but a small selection from those he has furnished us with. Viewing these as the result of one man's research, in an inconsiderable portion of North America, what a variety of new and splendid kinds would be the reward of those, who should explore the more genial regions of Asia, Africa, and South America, with equal diligence and information!

We have hazarded an assertion which may seem inadmissible, that the *Phalænæ* are infinitely more numerous than the *Papiliones*, or any other tribe of insects. Not that we possess more; but because, in every country that has been investigated, experience justifies such opinion. For instance, in Great Britain, we have only sixty *Papiliones*, and by mere accident two or three local species have lately been added; of the *Phalænæ* we have more than 900. The same comparative proportion is observed throughout the countries of the European continent; and it is singularly analogous, that our opinion is confirmed, by the recent discoveries of Mr. Abbot in America also.

q When Linnaeus described it, few of the very large species of *Phalæna* were known. We have two species from the interior of Africa, that are larger than the Chinese *var.* of *Atlas*, and several others scarcely inferior in magnitude.

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small specimen of the Surinam kind. According to Merian, there are three broods of this insect in a year; they are very common, and feed on the orange trees. Linnæus says, they adhere so tenaciously to the leaves, that they can scarcely be taken off<sup>†</sup>.

The common silk worm, or *Phalæna Mori*, is of this family, and merits observation as a native of China. The art of weaving its threads into silk is of the earliest date. The discovery is attributed to the *Seres*, a people of the East Indies, supposed the Chinese<sup>‡</sup>. In the days of Solomon, we are told, a woman named Pamphilia, of the Island of Co, was skilled in the art of making cloth, of the silk brought from the country of the Seres. The most ancient of the Chinese writers ascribe the invention to one of the women of the emperor *Hoang ti*, named *Si ling*, and in honour *Yuen fei*<sup>§</sup>. When Rome degenerated into voluptuousness, Persia, its dependency, furnished this article of luxury; but it is supposed they were indebted to the Chinese for it, and being supplied only in small quantities, it was consequently dear. In Rome it was so scarce, as to be worn only by persons of the first distinction.

The Chinese historians affirm, that the discovery was considered at first of such importance, that all the women in the palace of the emperor were engaged in rearing the insect, and weaving its silk. In after times, the silk of China was a principal article of commerce, but latterly its value has been materially lessened, by the culture and fabrication of silk in other countries. As the Chinese know little of the use of linen, the silk is a staple article of their own consumption. The jesuit missionaries mention several sorts of it, in use among the Chinese; some admired for beauty, and others for durability. It is generally supposed these are not merely the effect of different manufacture, but are the produce of distinct insects<sup>¶</sup>. Sir G. Staunton speaks of the culture of silk worms in China, but only of the common sort. It will gratify curiosity, if not prove advantageous, should future observers ascertain what kind of

<sup>†</sup> Larva verticillata verrucis pilosis nec folliculos grandes, tenaces, vix extricandos. *Linn. Syst. Nat.*

<sup>‡</sup> Velleræque ut foliis depectant tenuia Seres. *Virg. Georg. II. 122.*

<sup>§</sup> Dr HALDE, *Des Sogeries*. Les plus anciens écrivains de cet Empire, en attribuent la découverte à une des femmes de l'Empereur *Hoang ti*, nommée *Si ling*, et surnommée par honneur *Yuen fei*.

<sup>¶</sup> M. Merian says, in the description of the Surinam variety of *Phalæna Atlas*: "Telam ducunt fortem, quare bonum fore sericum rata, istius aliquam collegi copiam & in Belgium transmissi, ubi eadem optima judicata est: ut itaque, si quis *Erucas* istas congregandi laborem non detrectaverit, et bonæ notæ bombycem, et maximum hinc lucrum sibi comparare possit." The thread of which this cocoon's web is composed, is so strong, that it has been imagined it would make good silk. I have brought some of it into Holland, which has been esteemed such. So that if any one would take the trouble to collect a number of these caterpillars, they would be found good silk worms, and produce great profit. MERIAN.—Abbot informs us, the Moths of the Emperor tribe, in general, are called Silk worms by the people of Georgia, and in the description of *Phalæna cecropia*, is still more explicit: for he says, "the caterpillar spins on a twig. The outside web is coarse, the inner covered with silk, like a silk worm's cocoon. It is said this silk has been carded, spun, and made into stockings, and that it will wash like linen." *Abbot's Inf. by Dr. J. E. Smith*.—These insects are all of the same natural order, *P. Cecropia* is rather smaller, but very similar to *P. Atlas*, and this information at least corroborates the assertion of Merian.

An opinion, that the Chinese rear several kinds of insects for the sake of their silk, has long been prevalent. Dr. Lettsom proposes a query on this subject, "Which species of moth or butterfly is it, the caterpillar of which, in China, affords that strong grey kind of silk, and how is it manufactured or worn? How are these silk worms or caterpillars preserved, fed, and managed? The introduction of such a new silk into England would be a useful acquisition, and redeem entomology from the

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insects the Chinese appropriate to making silk, and whether *P. Atlas* is of the number, as has been conjectured.

cenfure it is now branded with, of being a mere curiosity, void of any real utility \*.” If *Leffer* and *Lyonet* are to be relied on, The *Theologie des Insectes* answers this query. “At this day there are to be found in China, in the province of Canton, silk worms in a wild state, which, without any care being taken of them, make in the woods a kind of silk which the inhabitants afterwards gather from the trees. It is grey, without lustre, and is used to make a very thick and strong cloth, named there Kien Tcheon. It may be washed like linen cloth, and does not stain.” A Gentleman resident in the East Indies, speaks of a large *Phalæna*, producing silk in that country. “We have a beautiful silk worm north-east of Bengal, that feeds on the *Ricinus*, whence I call it *Phalæna Ricini*: it is sea green, with soft spines, very large, and voracious, and spins a coarse, but strong and useful silk. The moth is of great size, with elegant dark plumage.—Is it known to European Naturalists?”—*In a collection of papers published by Dr. ANDERSON, in MADRAS, 1788, 1789.*—M. Le Bon, Reaumur, Roefel, and several others, have attempted to weave the silk of spiders, as a substitute for that of silk worms, but their experiments rather amuse, and point out the ingenuity of the proposers, than promise to be useful; for after many trials, it appears that the silk of spiders would be inferior in lustre, and far more expensive than that of silk worms. Sir G. Staunton alludes to these experiments in his description of the Java forests. “In some open spots were found webs of spiders, woven with threads of so strong a texture, as not easily to be divided without a cutting instrument; they seemed to render feasible the idea of him, who, in the southern provinces of Europe, proposed a manufacture from spiders’ threads; which is so ridiculous to the eyes of those who have only viewed the flimsy webs such insects spin in England.”—Many other substances of a soft texture have also been wrought into a variety of trifling articles, as gloves, stockings, &c. of the fibres of Asbestos earth, or mountain flax, beard of the large *Pinna* shell, &c. &c.

\* Naturalist and Traveller’s Companion, 174.



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\* *Phalena Bubo.*      *Phalena zonaria.* \*

\*\* *Phalena pagaria.*



LEPIDOPTERA.



\* *Phalena militaris*.

\* *Phalena letrix*.

## LEPIDOPTERA.

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### PHALÆNA MILITARIS.

#### SPECIFIC CHARACTER.

Wings spread. Yellow, with violet spots: ends of the wings violet, with white spots.

PHALÆNA MILITARIS: alis patulis concoloribus luteis: apice maculisque violaceis, anticis extus albo maculatis. *Linn. Syst. Nat.* 2. 811. 12.

*Fab. Ent. Syst.* 3. p. 1. 416. 33.

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This, and the following species, are scarce. Mr. Drury informs us, he never procured but a single specimen of *Phalæna lectrix*, in the course of thirty years collecting insects.

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### PHALÆNA LECTRIX.

#### SPECIFIC CHARACTER.

Wings incumbent, black: anterior pair spotted with blue, yellow, and white; posterior pair spotted with red and white.

PHALÆNA LECTRIX: alis incumbentibus nigris: maculis cœruleis flavis albisque, posticis rubro alboque maculatis. *Linn. Syst. Nat.* 2. 334. 83.

*Fab. Ent. Syst. Sp.* 1. p. 475. 212.

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### PHALÆNA BUBO.

*Noctua.*

#### SPECIFIC CHARACTER.

Wings spread, dentated brown, with black indulations. A large bright brown eye in the middle of the anterior wings.

PHALÆNA BUBO: alis patulis dentatis fuscis nigro undulatis: anticis macula magna ocellari brunnea.

*Fab. Ent. Syst. T.* 3. p. 2. 9. 4.

*Phalæna Macrops.* *Linn. Syst. Nat.* 3. 225.

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This is the largest of the Chinese *Noctuæ*; some very similar species, but without the orange eye, and of a smaller size, are peculiar to China.

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### PHALÆNA PAGARIA.

*Geometræ.*

#### SPECIFIC CHARACTER.

Antennæ pectinated. Wings roundish, blue black, with a row of white spots next the tips of the wings.

PHALÆNA PAGARIA: pectinicornis alis rotundatis cœruleo nigris: fascia macularia apicis alba.

*Fab. Ent. Syst. T. 2. p. 2. 153. 85.*

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### PHALÆNA ZONARIA.

#### SPECIFIC CHARACTER.

Antennæ fetaceous. Wings green, deeply bordered with pale red. A green spot on the exterior margin of each wing.

PHALÆNA ZONARIA: alis viridibus margine posteriore lato rufescente, singulis maculâ marginali viridi.

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Not described in any preceding work.



NEUROPTERA.



\* *Aeshna clavata.*

\* *Libellula indica.*

\*\* *Libellula 6 maculata.*

## NEUROPTERA.

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### LIBELLULA CLAVATA.

#### GENERIC CHARACTER.

Mouth furnished with more than two jaws. Antennæ like a bristle or hair, very short. Tail of the male armed with a pair of forceps.

#### SPECIFIC CHARACTER.

Abdomen clubbed at the end, gibbous or thick at the base. Body variegated with green, and deep brown stripes.

AESHNA CLAVATA: abdomine clavato basi gibbo, corpore fusco viridique variegato. *Fab. Spec. Inf.* 1. p. 526. 4.—*Ent. Syst.* 2. 385. 4.

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This insect is described by Fabricius, and in conformity with his new system, is termed *Aeshna clavata*<sup>c</sup>. We reject his generic definition, because it clearly belongs to the Linnæan *Libellulæ*. *Libellula clavata* must be placed with the European *L. grandis* and *forcipata*.—It is scarce, and has never been figured before.

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### LIBELLULA INDICA.

#### SPECIFIC CHARACTER.

Wings yellow, barred with brown, changeable to bright purple. Apex of the anterior pair white. Posterior pair blue at the base.

LIBELLULA INDICA: alis flavo fuscoque variis apice albis: posticis macula baseos cyanea. *Fab. Ent. Syst.* T. 2. 376. 9.

*Libellula variegata.* *Linn. Syst.* *Libellula hiftrio.* *Mant. Inf.*

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Another species of *Libellulæ*, peculiar to India, and found in China, greatly resembles this insect: it is probably a variety of it.

<sup>c</sup> Fabricius divides these two families of Linnæan *Libellulæ* into three distinct genera; the first retains the Linnæan name, the second and third are called *Aeshna* and *Agrion*. Their most essential characters are taken from the form and situation of the mouth, and therefore require a deep magnifier to determine them with accuracy. We have examined those parts in the greater number of the species Fabricius has described, and find his characters agree, except in one instance; but, which alone proves the impracticability of adopting the whole of his system: he describes *Libellula Chinensis*, and refers to the only figure that has been given of it, in one of the plates of Edwards's Natural History of Birds, 1745. Had he ever seen and examined this rare species, he must have referred it to his genus *Agrion*, each of the lips being bifid, or two-cleft, as in *Libellula virgo* and *puella*,—the essential characteristic of the genus *Agrion*; for the mouths of the *Libellulæ* of Fabricius differ altogether in structure, and are not notched in the slightest degree, as *Libellula clavata*, *ferruginea*, *6 maculata*, and the European species *Libellula depressa*, will sufficiently illustrate.

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### LIBELLULA 6 MACULATA.

#### SPECIFIC CHARACTER.

Three black marks on the anterior ribs of the first pair of wings, marginal spot white. Posterior wings clouded with yellow.

LIBELLULA 6 MACULATA: alis maculis tribus costalibus atris: ultima stigmatate niveo, posticis fasciis flavescens. *Fab. Ent. Syst. T. 2. p. 381. 37.*

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These delicate insects appear to be male and female; they are almost a miniature resemblance of the two sexes of *Libellula depressa*, found in Europe; one having the abdomen yellow, and the other blue.

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### LIBELLULA CHINENSIS.

#### SPECIFIC CHARACTER.

Anterior wings brownish, without spots. Posterior pair green. Apex brown.

LIBELLULA CHINENSIS: alis anticis testaceo obsoletis, posticis viridibus apice fuscis. *Linn. Syst. Nat. 2. 904. 15.*

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The only two specimens of this species we are acquainted with, were in the collection of the late Dukes of Portland; one of those is now in the possession of Mr. Francillon.

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### LIBELLULA FERRUGINEA.

#### SPECIFIC CHARACTER.

Wings clear, white, yellow at the base. Body red.

LIBELLULA FERRUGINEA: alis albis basi flavis, corpore rubro. *Fab. Ent. Syst. T. 2. p. 380. 33.*

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Very common in China.

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### LIBELLULA FULVIA.

#### SPECIFIC CHARACTER.

Wings yellowish, anterior margins testaceous, with a pellucid spot in the middle. Marginal spot near the end, brown.

LIBELLULA FULVIA: alis flavescens marginibus anticis testaceis, macula media subpellucida: stigmatate ad apicem fusca.

*Libellula fulvia. Drury Inf. tab. 46. fig.*

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This insect has been figured, but not described before. We apprehend Fabricius considered it a variety of some other species, not having noticed it.

NEUROPTERA.



*Libellula Chinensis.*    *Libellula ferruginea.*  
*Libellula subvna.*





APTE RA.



*Aranea Maculata.*

## APTERA.

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### ARANEA MACULATA.

#### SPOTTED SPIDER.

##### GENERIC CHARACTER.

Eyes eight. Mouth armed with two hooks or crotchets. Palpi two, consist of several joints, headed by the genitalia of the males in that sex. Anus contains teats for spinning.

##### SPECIFIC CHARACTER.

Thorax covered with a fatten-like pile, of a silvery colour. Abdomen cylindrical. Legs long and black.

\* \* \* \* \* Oculis. . . : . .

ARANEA MACULATA: thorace holofericeo argenteo, abdomine cylindrico, pedibus longissimis atris.

*Fab. Ent. Syst. t. 2. p. 425. sp. 66.*

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This remarkable creature is peculiar to some parts of the Chinese empire. It is not the largest of the genus, known; yet it is of sufficient magnitude to excite terror and disgust. To an European, who has seen only the indigenous spiders of his own country, a species five or six inches in length, and nearly the same in breadth, must appear a frightful creature: *Aranea Maculata* sometimes exceeds that size; but it has not the forbidding aspect of most insects of the same genus. The legs are unusually long, and the body slender. In its general appearance, it resembles some kinds of the *Phalangia* that are known in England by the vulgar name *Harvest-men*, being generally seen about that time of the year.

It has been observed, that nature oftentimes adorns the most deformed and loathsome of her creatures in the richest display of colours; and this is especially noticed in many sorts of snakes, toads, lizards, &c. Spiders seem also of this description: to a form the most hideous we frequently find united a brilliance of colours, and elegance of marking, that is scarcely excelled by any of the butterfly tribe,—the most beautiful of all lepidopterous insects. Our present subject is a striking proof of the latter part of this observation. The three figures in our plate of *Aranea Maculata* exhibit a front and a profile view of the insect, together with the front of the head at the third figure. The head is furnished with two very strong black mandibles, each terminated in an extremely acute point. The fore part of the thorax, which is wholly of a fine silky appearance, and the colour of silver, bending over the mandibles in the form of an arch, or circular head-piece, give it the resemblance of a black head with a crown of silver on the brow. This appearance is heightened in no small degree by three rugged prominences, one in the centre, and another on each side, on the upper part; and by the minute black eyes, which, like those of most spiders, sparkle with the lustre

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of small gems. These eyes are eight in number, four are placed immediately in the front of the silver-coloured circular front piece, and on each side are two more at equal distances, but rather in oblique positions.

The body is really beautiful, the chief colour is deep brown, strongly tinged with bright purple; a broad stripe of orange colour passes down the abdomen from the thorax to the apex: the whole is elegantly marked with a variety of cream-coloured lines and spots intersecting each other. Very little hair is found on any part of this spider except on the thorax, which being rubbed off, discovers a hard testaceous black substance beneath.

Fabricius is the only author who has described this insect: it has never been figured in any work whatever, as appears by the latest works of Fabricius, and our own observation. It is not always the most decisive method to determine the species from a concise description; but this is sometimes unavoidable, and in the present instance the description given by Fabricius accords in every respect with our specimen. The only insect with which it could possibly be confounded is *Aranea Pilipes*, which also has never been figured; it differs however from *Aranea Maculata* in the very hairy clothing of the legs, and it has also two silver stripes down the back: a striking specific distinction to separate it from our insect. It is also a native of the East Indies, but not of China, that we are informed.





## A P T E R A.

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### C A N C E R   M A M M I L L A R I S.

#### GENERIC CHARACTER.

Feet eight, claws two. Eyes two, distant from each other, and placed on a kind of footstalk; moveable.  
Palpi two large, furnished with claws. Tail articulated, and without sting.

#### SPECIFIC CHARACTER.

Thorax nearly oval, spinous. Three spines on each side, beak short, with three teeth.

CANCER MAMMILLARIS: thorace ovato aculeato utrinque trispinoso, rostro brevi tridentato.

*Fab. Ent. Syst. T. 2. p. 465. 91.*

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In the Entomologia Systematica of Fabricius we find a species of *Cancris* described, that seems to agree with our specimen. The specific character assigned by that author is however less satisfactory than the general description he has added. The two red spots are very characteristic.

Fabricius met with this creature in the cabinet of *Spengler*, and notes its *habitat* China. It is worthy of remark, that this is the only species of the *Cancer* genus, Fabricius mentions as a native of that country.

## A P T E R A.

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### C A N C E R    M A N T I S.

SPECIFIC CHARACTER,

AND

SYNONYMS.

Hand claws without tarfi, compressed, hooked, ferrated, with teeth. Body angulated. Tail ferrated, and armed with spines.

CANCER MANTIS: macrourus articularis, manibus adaetylis compressis falcatis ferrato-dentatis.

*Linn. Syst. Nat.* 633. 54.—edit. 10.

Squilla Mantis: manibus adaetylis compressis falcatis, ferrato dentatis, corpore subangulato, cauda ferrato spinosa. *Fab. Ent. Syst. T.* 3. p. 511.

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The Linnæan *Cancræ* are numerous, and include many species not less singular in appearance than the extraordinary creature before us. Indeed, some species are so extremely different from the rest, both in structure and manners of life, that we cannot hesitate in concluding the Linnæan character of the genus defective and indefinite. This may be observed in several of the species Linnæus himself described, and throughout a more extensive number of those discovered since the time of that author. It is evident Linnæus could never reconcile the subdivisions of the two principal families; the *Brachyuri* and *Macrouri*; or crabs with short and long tails; and later naturalists have ventured, with propriety, to alter this part of his arrangement. The *Pagurus*, *Hippa*, *Scyllaris*, *Astacus*, *Squilla*, and *Gammarus*, are so many new genera, formed of the Linnæan tribes of *Cancræ* in the last System of Fabricius. The genus, to which Fabricius retains the name *Cancer*, is distinguished from the rest, by having four short filiform antennæ; with the extreme articulation bifid, as we observe in the preceding species. This author follows Degeer in describing the Cancer Mantis, and alters the generic name to *Squilla*: he observes, that this genus is entirely distinct from the *Cancræ*, and we are of the same opinion, but adhere to the Linnæan genera, because the species, *Mantis*, was described by Linnæus, and it may be improper therefore to remove it, to a new genus, in any partial survey of his system. The Cancer Mantis is not peculiar to China.

APTERA.



*Cancer Mantis.*





A P T E R A .



*Scolopendra Morsitans.*

*London Published as the Act directs by E. Donovan March 1. 1798.*

## A P T E R A.

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### SCOLOPENDRA MORSITANS.

#### VENEMOUS, OR BITING CENTIPEDE.

##### GENERIC CHARACTER.

As many feet on each side, as segments of the body. Body depressed. Antennæ setaceous.

Palpi 2, jointed.

##### SPECIFIC CHARACTER

AND

##### SYNONYMS.

Feet 20 on each side, eyes eight.

SCOLOPENDRA MORSITANS: pedibus utrinque 20, oculis octo. *Linn. Syst. Nat.* 2. 1068. 5.—*Fab. Ent. Syst.* 2. 390. 6.

SCOLOPENDRA MORDANTE,—*Scolopendra* pedibus utrinque 21, posterioribus spinosis. *De Geer. Inf.* 7. 563. 1. *tab.* 43. *fig.* 1.

*Seba. Mus.* 1. *tab.* 81. *fig.* 3, 4.

————— 2. *tab.* 25. *fig.* 3, 4.

*Catesb. Car.* 3. 2. *tab.* 2.

*Sulz. Hist. Inf.* *tab.* 30. *fig.* 14.

*Bradl. Nat.* *tab.* 25. *fig.* 4.

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Travellers agree that the temperate parts of Asia would be a terrestrial paradise, were it not for the multitude of troublesome insects and reptiles with which they are infested. In a well cultivated country, like China, many of these creatures can scarcely find shelter; but such as harbour in the walls or furniture of human dwellings are as abundant in that, as any other country that lies within or near the tropics. Amongst the latter, none produce more terrible effects than the Centipede, whose poison is as venomous as that of the scorpion, which also is a native of China.

Sir G. Staunton mentions a remarkable circumstance that occurred during the late embassy to China. The ambassador and his suite were accommodated in a temple near the suburbs of Tong-choo-foo. "In some of the apartments the priests had suffered scorpions and scolopendras to harbour through neglect. These noisome creatures were known only by description to some of the gentlemen in the embassy, who had not visited the southern parts of Europe: the sight of such, for the first time, excited a degree of horror in their minds; and it seemed to them to be a sufficient objection to the country, that it produced these animals." Sir George however adds, that no accident happened in that instance.—The species of *Scolopendra* he alludes to, is probably *Morsitans*, which is common in many parts of the world, but is particularly found of a frightful size, and in vast abundance, in the two Indies.

## A P T E R A.

Many authors have described this creature. In the voluminous works of Seba we find several specimens of it from different countries, differing materially in size, and some trifling particulars, but all possessing the distinguishing characters of *Scolopendra Moritans*. The largest of these exceed our figure in magnitude, being near fourteen inches in length: this he calls *Millepeda major* ex nova Hispania. His figure of *Millepeda Africanae* is about the size of our Chinese specimen. He has also a third and fourth figure, *Millepeda Orientalis* and *Millepeda Cebonica*, *mas*: the latter is the same length as our figure, but the body is very narrow. *Millepeda Orientalis* is also the same length, but the body is very broad. Some of these insects are not four inches in length.

Authors agree that they vary exceedingly in size<sup>s</sup> and colour. De Geer describes them to be sometimes deep reddish brown; at others the colour of yellow ochre. The figure in Catesby's Natural History of Carolina is light brown; we have specimens of a livid yellow, and have seen others strongly tinged with red.

The last pair of legs are considerably larger than the others, and are armed with small black spines. The legs terminate in very sharp hooks or nails of a shining black colour. All the other legs are also furnished with a smaller nail of the same shape and colour.

M. Gronovius says that all its feet are very venomous; but the most formidable of its weapons are the two sharp, hooked instruments that are placed under the mouth, and with which it destroys its prey.

Lewenhoeck having examined these instruments with a microscope, he found a small opening at the extremity of each, and a channel from them into the body of the creature. Through this channel he supposes the *Scolopendra* emits the poisonous fluid into the wound it makes with the hooked instrument. That author further remarks, that he has seen a liquor on that part of living scolopendras. A figure of these instruments on the under side of the head, is represented in one of the dissections in our plate.

The same author, wishing to ascertain the influence of the poison of *Scolopendra moritans*, placed a large fly within its reach. The *Scolopendra* at first took it between a pair of its middle feet, then passed it from one pair of feet to the next, till the fly was brought under the sharp pointed instrument or crotchets at the head, which it plunged into the fly, and it died instantly. Notwithstanding this experiment, De Geer, Catesby, and other authors, assert, that its bite seldom proves fatal to larger animals; but all agree that its poison is as dangerous as that of the scorpion.

This *Scolopendra* has eight eyes: they are very small; four are placed on each side of the head near the antennæ. In the dissections a figure is given to exhibit the manner in which the four eyes are placed on one side.

<sup>s</sup> These creatures differ from most insects in their manner of growth, inasmuch that it is impossible to ascertain when they are of their full size. The segments of the body increase as they advance in age, which circumstance renders it difficult oftentimes to determine the species, without a minute examination of its other characters.

# I N D E X

ACCORDING TO THE

## S Y S T E M A N A T U R Æ

OF

## L I N N Æ U S.

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### COLEOPTERA.

SCARABÆUS.  
Pl. 1, 2, 3.  
nasicornis  
feniculus  
Midas  
Bucephalus  
Molophilus  
Sacer  
Icci  
cinctus  
Cetonia Chinenfis  
Melolontha viridis

CURCULIO.  
Pl. 4, 5.  
longipes  
barbirostris  
Chinenfis  
pulverulentus  
Squamofus  
—— magnified  
perlatus  
verrucosus

CERAMBYX.  
Pl. 6.  
rubus  
farinosus  
reticulatus

BUPRESTIS.  
Pl. 7.  
vittata  
ocellata

TENEBRIO.  
Pl. 8.  
femoratus

MELOE.  
cichorii

### HEMIPTERA.

MANTIS.  
Pl. 9.  
oculata  
flabellicornis

GRYLLUS.  
Pl. 10, 11, 12, 13.  
nasicornis  
vittatus  
gryllotalpa  
acuminatus  
perspicillatus  
flavicornis  
morbillofus

FULGORA.  
Pl. 14.  
Candelaria

CICADA.  
Pl. 15, 16, 17.  
atrata  
ambigua  
fanginea  
splendidula  
lanata  
fontalis  
abdominalis  
limbata var.

NEPA.  
Pl. 18, 19.  
grandis  
rufica

CIMEX.  
Pl. 20, 21.  
Stockerus  
dispar  
cruciger  
phasianus  
aurantius  
bifidus  
flambuschii

### LEPIDOPTERA.

PAPILIO.  
*Equites Troes.*  
Pl. 22, 23, 24, 25, 26.  
Crino  
Paris  
Coon  
Agenor  
Laomedon  
Peranthus

*Equites Achivi.*  
Pl. 27, 28, 29, 30, 31, 32.  
Telamon  
Agamemnon  
Rhetenor  
Demoleus  
Epius

*Heliconii.*  
Pl. 33.  
vesta

*Danai Candidi.*  
Hyparete  
Pasithoe  
—— Pl. 34, 35  
Glaucippe  
Sesia  
Pyranthé  
Philea

*Danai Festivi.*  
Jacintha  
Antiochus  
Jairus

*Nymphales Gemmati.*  
Pl. 36, 37, 38.  
Bernardus  
Oenone  
Almana  
Lubentina  
Orythia

*Nymphales Phalerati.*  
Polyxena  
Leucothoe  
Erymanthis  
Gambrifus

### *Placii Rurales.* Pl. 39.

Atymnus  
Mæcenus

SPHINX.  
Pl. 40, 41.  
Nechus  
Thallo  
ruficollis  
bifasciata  
Hylas  
Polymena

*Phalena.*  
Pl. 42, 43, 44.  
Atlas  
Militaris  
lectrix  
Bubo  
pagaria  
zonaria

### NEUROPTERA.

LIBELLULA.  
Pl. 45, 46.  
clavata  
indica  
6-maculata  
ferruginea  
fulvia  
chinenfis

### APTERA.

ARANEÆ.  
Pl. 47.  
maculata

CANCER.  
Pl. 48, 49.  
mamillaris  
mantis

SCOLOPENDRA.  
Pl. 50.  
morfitans.

# I N D E X

ACCORDING TO THE

## ENTOMOLOGIA SYSTEMATICA

OF

### FABRICIUS.

#### CLASS 1. ELEUTERATA.

- Genus 2. *Scarabæus*  
 nasicornis  
 feniculus  
 Midas  
 Bucephalus  
 Moloffus  
 facer  
 Leei  
 cinctus  
 Genus 55. *Sagra*  
 femorata  
 Genus 63. *Mylabris*  
 Cichorei  
 Genus 76. *Cetonia*  
 Chinenfis  
 Genus 77. *Melolontha*  
 viridis  
 Genus 78. *Buprestis*  
 vittata  
 ocellata  
 Genus 82. *Prionus*  
 reticulator  
 rubus  
 Genus 85. *Stenocorus*  
 farinosus  
 Genus 102. *Curculio*  
 longipes  
 barbirostris  
 Chinenfis  
 pulverulentus  
 squamosus  
 — mag.  
 perlatus  
 verrucosus

#### CLASS 2. ULONATA.

- Genus 120. *Mantis*  
 flabellicornis  
 oculata  
 Genus 122. *Truxalis*  
 nasutus  
 vittatus

- Genus 123. *Acheta*  
 Gryllotalpa  
 Genus 124. *Locusta*  
 perspicillata  
 acuminata  
 Genus 125. *Gryllus*  
 morbillofus  
 flavicornis

#### CLASS 5. ODONATA.

- Genus 164. *Libellula*  
 indica  
 chinensis  
 ferruginea  
 fulvia  
 6-maculata  
 Genus 165. *Aeshna*  
 clavata

#### CLASS 6. MITOSATA.

- Genus 167. *Scolopendra*  
 moritans

#### CLASS 7. UNOGATA.

- Genus 171. *Aranea*  
 maculata

#### CLASS 8. AGONATA.

- Genus 175. *Cancer*  
 mammillaris  
 Genus 184. *Squilla*  
 mantis

#### CLASS 9. GLOSSATA.

- Genus 186. *Papilio*  
  
*Equites Trojani\**  
 Crino  
 Paris  
 Coon  
 Laomedon

- Peranthus  
 Agenor

- \*\* *Equites Achivi.*  
 Telamon  
 Agamemnon  
 Demoleus  
 Epius

- \*\*\* *Festivi.*  
 Jacintha  
 Antiochus  
 Jairus

- \*\*\*\* *Nymphales.*  
 Bernardus  
 Gambrifius  
 Rhetenor  
 Alman  
 Oenone  
 Orythia  
 Lubentina  
 Leucothoë  
 Polyxena  
 Erymanthis

- \*\*\*\*\* *Heliconii.*  
 Vesta  
 Hyparete  
 Pafithoe

- \*\*\*\*\* *Danai.*  
 Pyranthe  
 Glaucippe  
 Sefia  
 Philea

- Genus 187. *Hesperia*  
 Mæcnas  
 Atymnus  
 Genus 188. *Sphinx*  
 Nechus  
 Genus 189. *Sefia*  
 Hylas

- Genus 190. *Zygæna*  
 bifasciata  
 ruficollis  
 Thallo

- Genus 191. *Bombyx*  
 Atlas  
 militaris  
 lectrix

- Genus 194. *Noctua*  
 Bubo

- Genus 196. *Phalæna*  
 pagaria  
 zonaria

#### CLASS 10. RYNGOTA.

- Genus 201. *Fulgora*  
 candelaria  
 Genus 203. *Tettigonia*  
 atrata  
 ambigua  
 fanguinolenta  
 splendidula  
 Genus 204. *Cicada*  
 limbata, var.  
 lanata  
 Genus 205. *Cercopis*  
 abdominalis  
 frontalis  
 Genus 208. *Nepa*  
 grandis  
 rufica  
 rubra  
 Genus 212. *Cimex*  
 Stockerus  
 dispar  
 aurantius  
 Genus 214. *Lygæus*  
 cruciger  
 phasianus  
 Slanbuschii  
 Genus 217. *Reduvius*  
 bifidus







